APPENDIX B – SUPPLEMENTAL REPORTS

1. OPERATING AGREEMENT AMENDMENT
2. BIOLOGICAL MEMORANDUM, RACHEL TIERNEY CONSULTING
3. BIOLOGICAL RESOURCES REPORT, VJS CONSULTING
4. WETLAND DELINEATION REPORT, RINCON CONSULTANTS
5. WATER SAMPLE ANALYSIS, FGL ENVIRONMENTAL
6. BIOSWALE REPORT, PENFIELD & SMITH
7. EXTENDED PHASE 1 ARCHAEOLOGICAL REPORT, DUDEK
8. ARCHAEOLOGICAL "LETTER REPORT", WESTERN POINTS ARCHAEOLOGY
9. UNION PACIFIC RAILROAD PHASE I SITE ASSESSMENT, GEOMATRIX
10. UNION PACIFIC RAILROAD PHASE II SITE ASSESSMENT, GEOMATRIX

GEOMATRIX

PRELIMINARY SITE ASSESSMENT

Carpinteria, California

Prepared for:

Union Pacific Railroad Company
1416 Dodge Street, Room 930
Omaha, Nebraska 68179

July 1999

Project No. 4221.20

Geomatrix Consultants

2101 Webster Street
12th Floor
Oakland, CA 94612
(510) 663-4100 • FAX (510) 663-4141

GEOMATRIX

July 20, 1999
Project 4221.20

Mr. Norm Siler
Union Pacific Railroad
1416 Dodge Street, Room 930
Omaha, Nebraska 68179

Subject: Preliminary Site Assessment Report
Carpinteria Sale Properties
Carpinteria, California

Dear Norm:

Enclosed is a copy of the subject report prepared by Geomatrix Consultants, Inc. This report summarizes the preliminary site assessment performed for the Union Pacific Railroad (UPRR) properties in Carpinteria, California.

As we discussed, a future buyer of the property may choose to investigate the recognized environmental concerns identified in this report by performing a soil and grab groundwater sampling program. These recognized environmental conditions are attributed to potential impacts to the site from off-site sources and on-site activities by entities other than UPRR.

We appreciate the opportunity to continue providing UPRR with our consulting services. Please call either of the undersigned if you have any questions or require additional information.

Sincerely yours,
GEOMATRIX CONSULTANTS, INC.

Penny M. Tse, P.E.
Project Engineer

Susan M. Gallardo, P.E.
Principal Engineer

PMT/SMG
I:\Doc_Safe\4000s\4221.20\PSAcvrltr.doc

Enclosure

cc: Don Caldwell, UPRR Real Estate (2 copies)

SUMMARY – PHASE 1 ENVIRONMENTAL SITE ASSESSMENT

Carpinteria Sale Properties	July 21, 1998
	Lat/Long:
Carpinteria, California	Project: 4221.020

Points of Contact

Union Pacific Real Estate: Don Caldwell (323) 980-6931
Union Pacific Environmental Management: Norm Siler (402) 271-4327
Geomatrix Consultants, Inc.: Penny Tse (510) 663-4100

Site Photo

See Appendix A

Current Status

- A bicycle rental operation was observed on the southern portion of the site.

Regulatory Status

None known at this time.

Summary of Potential Environmental Concerns

- Northeastern: None
- Northwestern: None
- Southern: Possible presence of gasoline UST and petroleum hydrocarbons in shallow soil in former Standard Oil Company operating area.
- Off-site Issues: Three nearby environmental cases were identified that could affect groundwater at the site

Site Description

Site and Vicinity Characteristics

- 4.7 acre site consisting of three portions: northeastern (0.7 acres), northwestern (1.5 acres), and southern (2.5 acres)
- Site area on sides of (north/south) railroad tracks
- Area surrounding site is commercial, residential, and recreational.

Primary Structures and Facilities

- The site is mostly vacant consisting of open vegetated fields, unpaved lots and maintained grass lawn
- Automobile encroachment by adjacent residences and wood chip waste pile was observed on the northwestern portion of the site

Geology/Hydrogeology

Geology –floodplain deposits of silt, sand, gravel and localized clay layers; the Rincon Creek Thrust Fault transects the southern portion of the site.

Groundwater Depth: ~7-25 feet bgs in site vicinity

Groundwater Flow Direction: primarily to the west

Historical Use

- Northeastern: industrial in area, no specific use indicated for site area itself.
- Northwestern: portions leased to nursery, three USTs were removed from this area and regulatory closure was obtained.
- Southern: used by Standard Oil Company with oil storage building, platform, pump house, and gasoline tank.

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PRELIMINARY SITE ASSESSMENT
Union Pacific Railroad Sale Property
Carpinteria, California

1.0 INTRODUCTION

This report summarizes a preliminary assessment of environmental conditions at the Union Pacific Railroad Company (UPRR) sale property in Carpinteria, California (Figure 1). Geomatrix Consultants, Inc. (Geomatrix), performed the site assessment on behalf of UPRR according to the provisions of Service Order No. 2796 (Contract Audit No. 701140).

The objectives of the preliminary site assessment (PSA) were to: (1) evaluate whether past on-site and off-site activities may have affected soil and groundwater quality beneath the site; (2) evaluate whether current on-site activities may affect soil and groundwater quality at the site; and (3) assist UPRR in assessing whether a Phase II program consisting of soil and/or groundwater sampling and chemical analysis may be necessary to further evaluate site conditions.

To accomplish these objectives, the PSA was performed in general accordance with guidelines for PSAs set forth in ASTM[1] E 1527-97 entitled *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (ASTM guideline). This preliminary assessment did not include a property title search or identification of all previous tenants; collection and chemical analysis of samples of soil, groundwater, or on-site materials; an evaluation of the presence of asbestos and radon; or an evaluation of seismic characteristics. The major components of the PSA were:

- site reconnaissance to observe and document general conditions and activities at the site and immediately adjacent properties;
- review of available Sanborn Fire Insurance (Sanborn) maps, historical aerial photographs for the site, and information provided by the UPRR real estate department;

[1] American Society for Testing and Materials.

- review of information that is publicly maintained and available regarding documented on-site and off-site chemical releases that may affect soil or groundwater conditions at the site; and

- data evaluation and report preparation.

2.0 SITE SETTING

The site is located in Carpinteria, California, between Holly Avenue and approximately 200 feet south of Palm Avenue (Figure 1). The site is approximately 4.7 acres. For purposes of clarity and potential future division of the site into different sale properties (personal communication with Don Caldwell, UPRR Real Estate), we have divided the site into three areas. The northeastern portion of the site refers to approximately 0.7 acres that is east of the main line railroad tracks. The northwestern portion of the site is approximately 1.5 acres and is located on the west side of the tracks between Holly and Linden Avenues. The southern portion of the site is the remainder of the site that is west of the main line railroad tracks south of Linden Avenue. This portion is approximately 2.5 acres. The three areas are shown on Figure 2. General land use of the adjacent properties is commercial, residential and recreational

2.1 GEOLOGIC AND HYDROGEOLOGIC SETTING

Based on information available in reports from nearby sites that were reviewed by Geomatrix (Secor, 1996; Fluor Daniel GTI, 1997), the site is located within the Carpinteria Basin, an east-west trending alluvial basin bound by the Santa Ynez mountains on the north and the Pacific Ocean on the south. The Carpinteria Basin extends westward for the Ventura County line (approximately 2.8 miles east of the site) to Torro Canyon (approximately 3.5 miles west of the site). The Carpinteria Basin contains several thousand feet of unconsolidated Recent and Pleistocene floodplain deposits of silt, sand, gravel and localized clay layers. These unconsolidated deposits are underlain by the non-marine, Early to Middle Pleistocene Casitas Formation. According to Dibblee (1986), the east-west trending Rincon Creek Thrust Fault transects the southern portion of the site approximately 200 to 300 feet north of Palm Avenue. Based on the U.S. Geological Survey (U.S.G.S.) topographic map (Carpinteria Quadrangle), the elevation of the site is approximately 20 feet above mean sea level.

The Rincon Creek Fault divides the Carpinteria Basin into two separate groundwater storage units. Based on information from nearby sites located north of the Rincon Creek Fault defined as Storage Unit No. 1 (Secor, 1996; Fluor Daniel GTI, 1997), depth to groundwater in the site

vicinity ranges from approximately 7 to 25 feet below ground surface (bgs). Groundwater flow direction is toward the west with an average horizontal hydraulic gradient of 0.05 foot per foot. We did not obtain hydrogeologic information for the storage unit south of Rincon Creek Fault.

3.0 SITE HISTORY

3.1 SANBORN FIRE INSURANCE MAPS

Geomatrix retained EDR Sanborn, Inc. (EDR), of Southport, Connecticut, to identify and supply Sanborn Fire Insurance Maps (Sanborn Maps) of the site. EDR provided one Sanborn Map for the year 1929. This map was limited in coverage of the site area showing only a portion of the site between Linden and Palm Avenues. The on-site features shown on the Sanborn map are located adjacent to and south of Linden Avenue. Features located west of and adjacent to the railroad tracks include an oil storage building, platform, pump house, and a gasoline tank (possibly underground) associated with the Standard Oil Company.

According to EDR, no other Sanborn Maps were available for subsequent years or other areas of the site.

3.2 AERIAL PHOTOGRAPHS

Geomatrix retained EDR to identify and supply historical aerial photographs of the site. EDR provided aerial photographs of the site and vicinity from the years 1947, 1959, 1964, 1978, 1989, and 1994. The approximate scale of these photographs ranged between 1 inch = 666 feet to 1 inch = 1000 feet.

In the 1947 photograph, the majority of the site vicinity appeared to be undeveloped vacant land with the exception of two areas. Areas near the site between Linden and Maple Avenues and Linden and Elm Avenues appeared to be occupied by buildings or structures; however these structures do not appear to be on site. The use of these areas could not be determined due to the scale (1 inch = 1000 feet) of the photograph.

In the 1959 photograph, the features observed between Linden and Maple Avenues have been removed. In the area between Linden and Elm Avenues, structures were observed only on the northern half of the area; the remaining portion of this area appeared to be vacant. No significant changes were noted in the 1964 photograph.

In the 1978 photograph, the entire site appeared to be vacant. In the 1989 photograph, the area of the site between Linden and Palm Avenues appeared to be part of the Carpinteria State Beach with trees and some vegetation. Some structures might have been located on the area of the site between Linden and Elm Avenues; however the quality and resolution of the photograph were not adequate enough to clearly distinguish these potential features.

In the 1994 photograph, the site appeared to be vacant and unoccupied.

During the photograph review, general observations were made of the surrounding area. Carpinteria State Beach borders the western side of the site between Linden and Palm Avenues. The general use of the area appeared to include a mixture of undeveloped/agricultural, residential and commercial use. Over the time period reviewed, the density of residential and commercial features increased while undeveloped and agricultural areas appeared to decrease. Other significant changes observed in the 1959 photograph included the presence of: (1) a wastewater treatment plant south of the site; and (2) Highway 101 to the east of the site.

3.3 INFORMATION FROM UPRR

Information from the UPRR sale property program provided by the UPRR Real Estate department was reviewed. Per Don Caldwell, property east of the railroad tracks historically was industrial; the specific use of the northeastern portion of the site is not known. Additionally, parts of the northwestern and southern portions of the site were leased to a nursery. Specific historical operating areas were not identified in the information reviewed.

According to UPRR, a UST removal and subsequent sampling was performed for an adjacent UPRR parcel located east of the main line railroad tracks between Palm and Olive Avenues. Regulatory closure was obtained for this site in July 1997.

4.0 SITE RECONNAISSANCE

4.1 OBSERVATIONS AND CONDITIONS ON SITE

Geomatrix staff performed reconnaissance of the site and adjacent properties on June 29, 1999. With a few exceptions the site is primarily vacant with vegetation, unpaved lots and maintained grass lawn. A bicycle rental structure and two associated bicycle storage containers and a high voltage electrical box are located on the southern portion of the site. A wood chip waste pile (approximately 6 cubic yards) was observed just north of Linden Avenue on the northwestern portion of the site. Automobile parking encroachment by adjacent residences was observed

along the entire length of the northwestern portion of the site. Photographs of the site are included in Appendix A.

4.2 OBSERVATIONS AND CONDITIONS ADJACENT TO THE SITE

The site is divided by Union Pacific railroad track and easements. General usage of the area includes residential, industrial and California State park land. Underground fiber-optic cables are marked by PVC poles and run parallel to the railroad tracks. Property uses northeast of the site are primarily industrial (flag manufacturing) and commercial (warehousing, restaurants, building contracting and offices). On an adjacent property southeast of the site is a dirt lot with four 3-legged wooden pole structures of unknown use. The Carpinteria sewage treatment plant also is located southeast of the site. A recreational vehicle sewage dumping station lies to the south in the Carpinteria State Beach campground. A water pump station was observed to the west, also for the State Beach. The remainder of the western border is residential.

5.0 REVIEW OF AGENCY FILES

Geomatrix retained EDR to search applicable regulatory databases to identify properties with documented environmental releases and/or that use, store, or dispose of regulated chemicals. The radii of the database search corresponded to the recommended radii in the ASTM guideline. The EDR report is included in Appendix B.

EDR identified approximately 39 environmental cases located within the search radius. Geomatrix reviewed the EDR report to identify cases that may affect site soil and groundwater using a ¼-mile radius for permitted USTs cases and a ½-mile radius for toxic and fuel leak cases. Twelve of the 39 cases were documented leaking underground storage tank (LUST) cases. Based on the information provided by EDR, six of these cases have been closed by the overseeing regulatory and are inactive. Geomatrix reviewed files for the remaining six LUST cases for which their status was unclear or listed as active in the EDR report. Based on the database search information, these six cases appeared to have the highest potential to affect site soil and groundwater and are summarized on Table 1 and in Section 5.1 below. Geomatrix reviewed regulatory agency files for these sites to obtain additional information pertaining to their current status. Information was requested from records maintained by the County of Santa Barbara, Department of Environmental Health (SBDEH) and the California Regional Water Quality Control Board, Central Coast Region (RWQCB). The following section summarizes the information provided by EDR and obtained during the regulatory agency file review.

5.1 FUEL LEAK CASES

The EDR database search identified Orchard Services located at 399 Linden Avenue as a LUST case. This case was located on the site west of Linden Avenue on the northwestern portion of the site. SBDEH file information indicates that three fuel USTs were removed in 1990. Soil excavation and groundwater monitoring was initiated in 1990. Associated monitoring wells were abandoned and the site was granted closure by the SBDEH in 1996. Site maps and a copy of the closure letter for this case included in Appendix C.

The EDR database search identified Carpinteria Motor Transport located at 410 Palm Avenue as a LUST case. This property is located less that ¼ mile northeast of the site. Reports reviewed at the RWQCB indicate that three fuel USTs were removed in the mid-1980s and that excavation and soil treatment has been performed. The case was granted closure in 1989 by SBDEH[1]. Based on source removal activities at the property and the cross-gradient location of the property relative to the site, it is unlikely that this fuel leak case adversely impacted environmental conditions at this site.

The EDR database search identified Carpinteria Valley Lumber Company located at 915 Elm Street as a LUST case. This property is located approximately 1/4 mile north-northeast of the site. Information at SBDEH indicate that two fuel USTs were removed in 1988 and an "underground storage tank unauthorized release (leak)" report was filed associated with the tank removal activities. The leak report indicated that a remedial action to excavate and dispose would be implemented. No further information was available during the file review at SBDEH. Based on the information reviewed and the possible up- or cross-gradient location of the site, this case could have adversely impacted the environmental conditions at the site.

The EDR database search identified Chevron USA, Inc. located at 4991 Carpinteria Avenue as a LUST case approximately 1/2 mile northeast of the site. Reports at the SBDEH indicate that a gasoline spill occurred at this site and that subsequently, "adsorbed-phase hydrocarbons" were identified in the subsurface. After investigation and groundwater monitoring took place, the site was closed by the SBDEH and the RWQCB in 1998. Based on the results of groundwater monitoring and recent regulatory closure due to "compliance with RWQCB

[1] Information obtained during the Carpinteria Motor Transport file review at SBDEH indicated that affected soil was discovered from a petroleum UST located on UPRR property. Based on the location of the Carpinteria Motor Transport site and UPRR file information (Section 3.3), the referenced UST was likely located on the east side of the railroad track between Palm to Olive Avenues. As described in Section 3.3, this site was closed in July 1997.

groundwater clean up concentrations[2]", it is unlikely that this property adversely impacted the environmental conditions at the site.

The EDR database search identified Exxon/McDonald's located at 1115 Casitas Pass Road as a LUST case. This property is located approximately ½ mile northeast of the site. Reports at the SBDEH indicate that unleaded fuel was accidentally released and that free-product was found in groundwater associated with property's USTs between 1983 and 1985. Active soil and groundwater remediation activities for this case have been in operation since January 1999. Based on the information reviewed and the possible up- or cross-gradient location of the site, this case could have adversely impacted the environmental conditions at the site.

The EDR database search identified Arco Station #1980 located at 1116 Casitas Pass Road as a LUST case. This property is located approximately ½ mile northeast of the site. Information in SBDEH files indicate that four gasoline USTs were removed and quarterly groundwater monitoring was initiated in 1989. A 1998 document in the file indicated that the case required additional groundwater assessment, in particular, for methyl-tert-butyl-ether (MtBE) which was detected in a downgradient (specific location not identified) well. Soil sampling was performed in February 1999 in the vicinity of current operational pump islands. Three 12,000 gallon double-contained USTs are located at this property. Based on the information reviewed and the possible up- or cross-gradient location of the site, this case could have adversely impacted the environmental conditions at the site.

5.2 PERMITTED UNDERGROUND STORAGE TANKS

EDR identified five facilities with permitted underground storage tanks within ¼ mile of the center of the site. These sites are: Orchard Services at 399 Linden Avenue, Carpinteria at 5361 Sixth Street, Wullbrandt Welding at 655 Linden Avenue, Carpenteria Motor Transport at 410 Palm Avenue, and Maintenance Yard at 5361 6th Street.

There is no record of a permit or removal of a gasoline tank in the southern portion of the site. As previously indicated in Section 3.1, it is unknown whether the tank identified in the Sanborn map was an above- or underground storage tank.

[2] Specific cleanup concentrations are documented in a September 15, 1998 RWQCB letter.

6.0 SUMMARY

6.1 SUMMARY OF FINDINGS

The primary findings of the PSA that may be pertinent to potential environmental conditions at the site are summarized below:

- ***Hydrogeologic Conditions:*** Environmental investigations at nearby properties indicate that the groundwater flow direction is documented primarily to the west. The depth to groundwater for these sites range from approximately 7 to 25 feet bgs.
- ***Current Site Conditions:*** The site is mostly vacant consisting of open vegetated fields, unpaved lots and maintained grass lawn. A bicycle rental operation was observed on the southern portion of the site. Automobile encroachment by adjacent residences and a wood chip waste pile was observed on the northwestern portion of the site.
- ***Historic Operations/Use:*** Use of the northeastern portion of the site may have been industrial. Parts of the northwestern and southern portions of the site were leased to a nursery. In the area of the southern portion of the site just south of Linden Avenue, the property was used by Standard Oil Company including an oil storage building, platform, pump house, and a gasoline tank
- ***Off-Site Properties:*** Specific off-site issues that could affect groundwater at the site were identified from the information sources Geomatrix reviewed. These include Carpinteria Valley Lumber Company (915 Elm Street), Exxon/McDonald's (1115 Casitas Pass Road), and Arco Station #1980 (1116 Casitas Pass Road).

6.2 RECOGNIZED ENVIRONMENTAL CONDITIONS

Based on the primary findings identified in this report, the recognized environmental conditions that could affect the site are as follows:

- Northeastern portion of the site: No specific environmental conditions were identified for this portion of the site. Although the historical use of this area of the site was industrial, no specific information reviewed at this time indicates that this portion of the site was an active area.
- Northwestern portion of the site: No specific environmental conditions were identified for this portion of the site. Although the historical use of this area and the southern portion of the site were leased to a nursery, chemical usage associated with the site (fuel USTs) has been addressed and closed by the SBDEH. It is assumed that small quantities of pesticides may have been used as part of nursery operations; however, because the use of these chemicals likely was limited, no significant environmental impact would have occurred.

- Southern portion of the site: A gasoline UST may have been located south of Linden Avenue associated with the former Standard Oil Co. Additionally, operating areas of this facility could have affected with petroleum hydrocarbons and related constituents.

- Three off-site issues [Carpinteria Valley Lumber Company (915 Elm Street), Exxon/McDonald's (1115 Casitas Pass Road), and Arco Station #1980 (1116 Casitas Pass Road)] were identified that could affect groundwater at the site.

7.0 LIMITATIONS

This assessment reflects results of work performed in accordance with the terms and conditions of Service Order No. 2796 (Contract Audit No 701140). The observations and conclusions presented in this report are based on information obtained through the work described herein. The scope of services did not include sample collection and analysis for hazardous materials. In addition, this assessment did not evaluate asbestos, radon, or seismic risk. It must be recognized that any conclusions regarding the history and environmental conditions of the site and neighboring sites rely on the completeness and integrity of the information available at the time of the assessment and the cooperation of persons contacted. As such, no absolute determination can be made of all environmental risks. Opinions presented herein apply to conditions observed or data obtained at the time of our assessment and cannot apply to site conditions or changes of which we are not aware or which we have not had the opportunity to evaluate. This assessment is provided by Geomatrix for the specific use of Union Pacific Railroad Company and may not contain sufficient information for the purposes of other parties.

8.0 LIST OF REFERENCES

American Society for Testing and Materials (ASTM), 1997 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, ASTM Designation: E 1527-97.

County of Santa Barbara, Protection Services Division, 1996, Letter to Mr. John Moe, Southern Pacific Transportation Company, 399 Linden Avenue, Carpinteria, California, LUFT Site #50119, May 13.

TerraNext, 1996, Report for Groundwater Monitoring at the Former Orchard Services Site, Southern Pacific Transportation Company, 399 Linden Avenue, Carpinteria, California, February 20.

SP Environmental Systems, Inc. (1990), Site Investigation and Remediation Report, Southern Pacific Transportation Company, Carpinteria, California, November 21, 1990.

Dibblee, Thomas W. Jr., 1986, Geologic Map of the Carpinteria Quadrangle, Santa Barbara County, California.

Flour Daniel GTI, 1997, Additional Site Investigation report for former Chevron Site No. 9-0796, 4991 Carpinteria Avenue, Carpinteria, California, October 15.

Secor International, Inc., 1996, Additional Assessment Workplan, ARCO Station 1980, 1116 Casitas Pass Road, Carpinteria, California, June 17.

TABLE

TABLE 1

SELECTED DOCUMENTED REGULATORY AGENCY SITES

Carpinteria Sale Property
Carpinteria, California

Site Map ID[1]	Site Name	Site Address	Source(s) of Information	Year(s) of Information	Site History and Description	Constituents Detected in Soil and Groundwater and Maximum Concentrations	Depth to Groundwater (feet below ground surface)	Direction of Groundwater Flow	Distance (miles) and Direction from Site
A1	Orchard Services	399 Linden Avenue	Santa Barbara County Fire Department	11/90 – 5/96	• 2/90: Two USTs removed and samples taken. Further investigation was required. • 1990-91: Two stages of soil excavation/remediation took place and a third tank was discovered and removed. • 4/92: Closure requested. More investigation was required by Santa Barbara County. • 5/96: Closure granted by Santa Barbara County. Investigations monitoring and remedial activity completed.	Soil (mg/kg) TPHms 3,800 Total Lead 120 B 0.06 T 0.59 E 2.8 X 0.86 Groundwater (µg/l) BTEX <0.5 TPH <50	8.0 – 9.3	Southwest	On-site
E14	Carpinteria Motor Transport	410 Palm Avenue	Santa Barbara County Fire Department	3/88-8/89	• mid-1980s: One gasoline and two diesel USTs were removed in mid 1980s. 180 cu yds of soil was excavated Accurate extent and source of affected soil not defined. Three monitoring wells installed after first excavation and tank removal. Two sources of contamination assumed (one on-site and one southwest of site). • 8/88: Additional investigation performed. 200 cu yds of soil treated with bacterial treatment process (Munox bacterial innoculant). • 2/89: Site granted closure by Santa Barbara County.	Soil (mg/kg): TRPH 1300 TVPH 230 Volatile Organics 150 Other VOCs 0 - 0.076 B 0.15 T 6.0 E 28.0 X 5.0 Groundwater (µg/l) TRPH 6.0 TVPH 53,000 B 1600 T 1700 X 6900	7 - 8	NR	<¼ mile Southeast
126	Carpinteria Valley Lumber Company	915 Elm Street	Santa Barbara County Fire Department	1/86 – 9/88	• 5/88: Applied to abandon two USTs (diesel and gasoline). • 9/88: County found evidence of affected soil during UST abandonment inspection. • 9/88: Filed report for unauthorized release of gasoline indicating plan to excavate and dispose affected soil.	Soil (mg/kg) TPH 25	15 –20	NR	¼ mile North-Northeast

TABLE 1

SELECTED DOCUMENTED REGULATORY AGENCY SITES

Carpinteria Sale Property
Carpinteria, California

Site Map ID[1]	Site Name	Site Address	Source(s) of Information	Year(s) of Information	Site History and Description	Constituents Detected in Soil and Groundwater and Maximum Concentrations	Depth to Groundwater (feet below ground surface)	Direction of Groundwater Flow	Distance (miles) and Direction from Site
G29	Chevron USA, Inc	4991 Carpinteria Ave.	Santa Barbara County Fire Department	4/93 – 11/98	• 7/91: Accidental 20-gallon gasoline spill. • 3/93: Groundwater Technology, Inc. contracted to investigate soil. Borings were drilled and samples taken. • 8/95: Monitoring wells abandoned and closure granted. • 7/96: "Adsorbed-phase hydrocarbons" identified in subsurface, site became active LUFT site. Buildings and equipment removed. • 4/97: Geoprobe/Hydropunch indicated presence of hydrocarbons in soil and groundwater • 11/98: Closure granted by Santa Barbara County and the RWQCB based on "compliance with RWQCB groundwater cleanup concentrations".	Soil (mg/kg) B 75 T 740 E 370 X 2,400 TPHg 23,000 Total Lead 5.4 EFH 200 Groundwater (µg/l) B 1,500 T 14 E 2,300 X 2,000 TPHg 26,000 MTBE 1,600 Total Lead 94	9 - 9.5	West	~ 1/2 mile Northeast
M50	Exxon/McDonald's	1115 Casitas Pass Road	Santa Barbara County Fire Department	1983-1/99	• 1983: Accidential release of unleaded fuel from UST. Tank repaired and returned to service • 8/85: Assessment found free floating product in groundwater near fuel tanks. Three fuel and one waste oil UST removed and station demolished. • 6/97: AET (Applied Environmental Technologies Inc.) performed field testing for soil and groundwater remediation according to approved FS/RAP. • 8/98: Installation of soil and groundwater remediation systems (air sparging/venting and SVE). • 1/99: Site remediation and groundwater monitoring started.	Soil (mg/kg) B 17 T 170 E 62 X 320 TPH 5,100 Total Lead 16.8 MtBE 14.9 TRPH 6,800	22 – 25	West	½ mile Northeast

TABLE 1

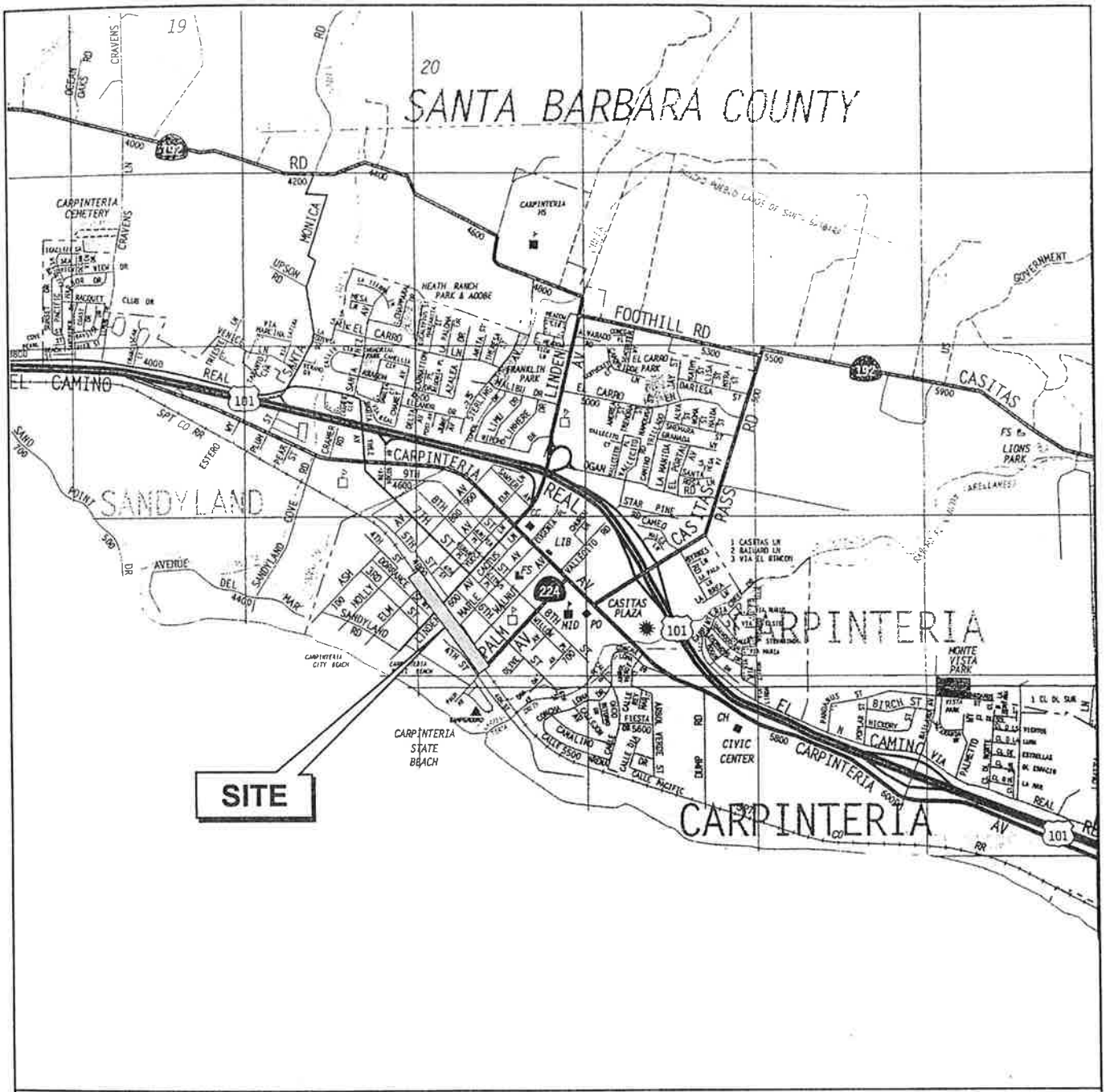
SELECTED DOCUMENTED REGULATORY AGENCY SITES
Carpinteria Sale Property
Carpinteria, California

Site Map ID[1]	Site Name	Site Address	Source(s) of Information	Year(s) of Information	Site History and Description	Constituents Detected in Soil and Groundwater and Maximum Concentrations	Depth to Groundwater (feet below ground surface)	Direction of Groundwater Flow	Distance (miles) and Direction from Site
M51	Arco Station #1980	1116 Casitas Pass Road	Santa Barbara County Fire Department	3/89 – 2/99	• 3/89: Applied to abandon four gasoline USTs. • 6/89: Tanks removed and excavation of soil began after site assessment. • 7/89: Quarterly groundwater monitoring program initiated. • 9/90: Conducted vapor extraction testing • 1/98: A "Determination of Low-Risk Groundwater Site " form was in file indicating that 1) extent of TPH and BTEX at site had been delineated but distribution of MtBE is not known; 2) no active remediation ongoing at this time; and 3) additional assessment was required. • 2/99: Soil sampling performed in the vicinity of currently operating pump islands. • 1999: Three 12,000-gallon fuel USTs with double containment on site.	Soil (mg/kg) – 1/7/99 B 4.3 T 160 E 220 X 1,000 TPHg 13,000 MTBE 7.4 Lead 11 Groundwater (µg/l) TPHg 1,000 Total Lead 5 B 140 T 1 E 77 X 19 MTBE 4,300	20 – 22	West	½ mile Northeast

Notes:

[1] Map ID = Map identification numbers as referenced in EDR Report.
[2] EDR = Environmental Data Resources, Inc.
RWQCB = Water Quality Control Board, Central Coast Region
[3] UST = Underground storage tank
TPH = Total petroleum hydrocarbons
TPHms = Total petroleum hydrocarbons as mineral spirits
TRPH = Total recoverable petroleum hydrocarbons
TVPH = Total volatile petroleum hydrocarbons
TPHg = Total petroleum hydrocarbons as gasoline
TPHd = Total petroleum hydrocarbons as diesel
B = Benzene
T = Toluene
E = Ethylbenzene
X = Xylenes
MtBE = methyl-tert-butyl-ether
VOCs = volatile organic compounds
mg/kg = Milligrams per kilogram
µg/l = Micrograms per liter
NR = not reported

FIGURES



GEOMATRIX

SITE LOCATION MAP
Union Pacific Railroad
Carpinteria, California

Figure
1

Project No.
4221.20

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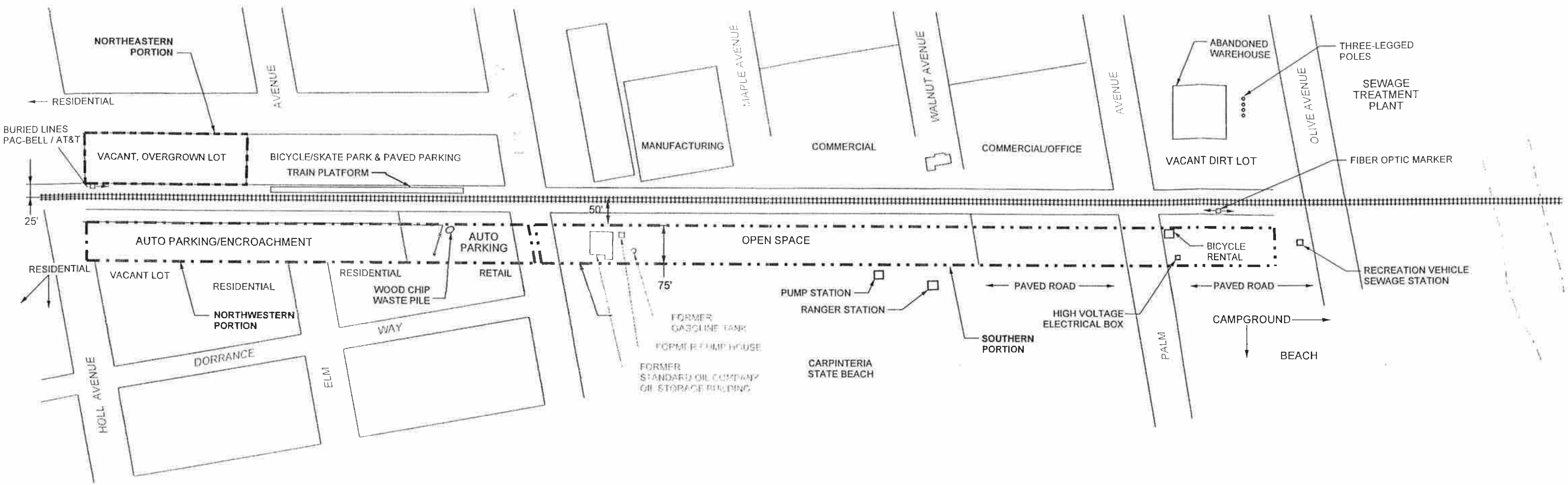

EXPLANATION

SALE PROPERTY BOUNDARIES:

– – – – – NORTHEASTERN PORTION

– · – · – NORTHWESTERN PORTION

· – · · – SOUTHERN PORTION

0 200
SCALE IN FEET

Note:
1. Base map provided by Union Pacific Railroad Real Estate Department.
2. Location of historical features based on 1929 Sanborn Fire Insurance Map.
3. Site conditions and features based on June 29, 1999 Geomatrix field visit.

SITE PLAN
Union Pacific Railroad
Carpinteria, California

GEOMATRIX | Project No. 4221.20 K | Figure 2

20-JUL-1999 09:38 ishkolnikova
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APPENDIXES

Photo 1. Southern portion of site: At Olive Avenue facing north (bicycle rental area).

Photo 2. Southern portion of site: Bicycle rental area near Palm Avenue (facing south).

Photos taken by Geomatrix on 6/29/99.

GEOMATRIX

Photo 3. Southern portion of site: At Palm Avenue facing north.

Photo 4. Southern portion of site: Approximately 350 feet north of Palm Avenue, facing north.

Photos taken by Geomatrix on 6/29/99.

Photo 5. Southern portion of site: Approximately 400 feet south of Maple, facing east towards site.

Photo 6. Southern portion of site: At Linden Avenue, facing south towards site.

Photos taken by Geomatrix on 6/29/99.

GEOMATRIX

Photo 7. Northwestern portion of site: At Linden Avenue facing north (woodchip wastepile and auto parking encroachment).

Photo 8. Northwestern portion of site: Approximately 400 feet north of Linden Avenue, facing site and train platform (parking encroachment).

Photos taken by Geomatrix on 6/29/99.

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GEOMATRIX

Photo 9. At Holly Avenue facing south towards northwestern portion of site.

Photo 10. At Holly Avenue facing south towards northeastern portion of site.

Photos taken by Geomatrix on 6/29/99.

Photo 11. At southern end of northeastern portion of site, facing north.

Photos taken by Geomatrix on 6/29/99.

APPENDIX B

ENVIRONMENTAL DATA RESOURCES, INC. REPORT

GEOMATRIX

Results of Limited Phase II Investigation

Carpinteria, California

Prepared for:

Union Pacific Railroad Company
1416 Dodge Street, Room 930
Omaha, Nebraska 68179

September 1999

Project No. 4221.20

Geomatrix Consultants

2101 Webster Street
12th Floor
Oakland, CA 94612
(510) 663-4100 • FAX (510) 663-4141

GEOMATRIX

September 20, 1999
Project 4221.20

Mr. Norm Siler
Union Pacific Railroad
1416 Dodge Street, Room 930
Omaha, Nebraska 68179

Subject: Results of Limited Phase II Investigation
Carpinteria Sale Properties
Carpinteria, California

Dear Norm:

Enclosed is a copy of the subject report prepared by Geomatrix Consultants, Inc. This report summarizes the Results of Limited Phase II Investigation performed for the Union Pacific Railroad (UPRR) properties in Carpinteria, California.

We appreciate the opportunity to work with you on this project. Please call either of the undersigned if you have any questions or require additional information.

Sincerely yours,
GEOMATRIX CONSULTANTS, INC.

Penny M. Tse, P.E.
Project Engineer

Susan M. Gallardo, P.E.
Principal Engineer

PMT/SMG:ldu
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Enclosure

cc: Don Caldwell, UPRR Real Estate (2 copies)

GEOMATRIX

Results of Limited Phase II Investigation

Carpinteria, California

Prepared for:

Union Pacific Railroad Company
1416 Dodge Street, Room 930
Omaha, Nebraska 68179

September 1999

Project No. 4221.20

Geomatrix Consultants

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RESULTS OF LIMITED PHASE II INVESTIGATION
Union Pacific Railroad Sale Property
Carpinteria, California

1.0 INTRODUCTION

This report presents the results of a limited Phase II Investigation at the property located in Carpinteria, California (the site, Figure 1). This work was performed on behalf of Union Pacific Railroad Company (UPRR) by Geomatrix Consultants, Inc. (Geomatrix) in accordance with our July 29, 1999 Scope of Services and Cost Estimate, and Service Order No. 2796 (Contract Audit No. 701140).

2.0 SITE SETTING

The site consists of approximately 4.7 acres located in Carpinteria, California. The site parallels the UPPR main line tracks and extends from Holly Avenue on the northwest to approximately 200 feet south of Palm Avenue on the southeast (Figure 1). For purposes of clarity, we have divided the site into three areas. The northeastern portion of the site refers to approximately 0.7 acres that is east of the main line railroad tracks. The northwestern portion of the site is approximately 1.5 acres and is located on the west side of the tracks between Holly and Linden Avenues. The remaining southern portion of the site (approximately 2.5 acres) is west of the main line railroad tracks and south of Linden Avenue. The three areas are shown on Figure 2. General land use of the adjacent properties is commercial, residential and recreational. It is our understanding that Union Pacific Railroad plans to sell the southern portion of the site to the State of California.

3.0 GEOLOGIC AND HYDROGEOLOGIC SETTING

The site is located within the Carpinteria Basin, an east-west trending alluvial basin bound by the Santa Ynez mountains on the north and the Pacific Ocean on the south. The Carpinteria Basin contains unconsolidated Recent and Pleistocene floodplain deposits of silt, sand, gravel and localized clay layers. Based on the U.S. Geological Survey topographic map (Carpinteria Quadrangle), the elevation of the site is approximately 20 feet above mean sea level.

Depth to groundwater in the vicinity of the site ranges from approximately 7 to 25 feet below ground surface (bgs). Groundwater flow direction in this area is toward the west with an average horizontal hydraulic gradient of 0.05 foot per foot (Secor, 1996; Fluor Daniel, 1997).

4.0 SUMMARY OF SITE HISTORY

This section presents an overview of the history of the site complied from information obtained by Geomatrix during a previous Phase I investigation conducted in June and July 1999 (Geomatrix, 1999). This investigation found that the northeastern portion of the site might have been industrial, but that no specific information indicated that this was an active area. Parts of the northwestern and southern portions of the site were leased to a nursery, but it is unlikely that any significant environmental impact would have occurred from this operation. Standard Oil Company formerly operated in the southern portion of the site between Linden Avenue and Palm Avenue. The Standard Oil facility was adjacent to the Carpinteria State Beach and included an oil storage building, platform, pump house, and a gasoline tank. This facility could have affected soil or groundwater with petroleum hydrocarbons and related constituents.

Currently the site is mostly vacant consisting of open vegetated fields, unpaved lots and a grass lawn maintained by Carpinteria State Beach. A bicycle rental operation is located on the southern portion of the site. Automobile encroachment by adjacent residences and a wood chip waste pile is located on the northwestern portion of the site.

5.0 PHASE II INVESTIGATION

As described in our July 29, 1999 Scope of Services, the objective of the Phase II investigation was to evaluate whether past on-site activities associated with the former Standard Oil facility may have affected soil and groundwater quality beneath the southern portion of the site. This section presents the field and analytical methods used to conduct the investigation.

5.1 SOIL BORING SAMPLING METHODS

Prior to initiating fieldwork, Geomatrix contacted the Santa Barbara County Fire Department (SBCFD) in Buellton to determine whether drilling permits were necessary to perform the described scope of work. Based on telephone conversations with SBCFD no permits were required. Geomatrix prepared a site-specific Health and Safety Plan and notified Underground Service Alert of the planned drilling activities. Cruz Brothers, an independent underground utility locator of Santa Cruz, California, was contracted to clear the boring locations and to survey the area for the possible presence of an underground storage tank (UST) associated with the operations of the former Standard Oil facility.

Gregg Drilling and Testing, a licensed drilling contractor of Martinez, California, under the supervision by Geomatrix staff, drilled three soil borings on August 16, 1999. The borings (GMX-1 through GMX-3) were advanced using direct push technology to depths ranging from 16 to 20 feet bgs. The boring locations were in the approximate area of the former Standard Oil facility and are shown on Figure 2. The soil borings were continuously sampled and lithologic logs were prepared by Geomatrix staff. The lithologic descriptions of the soil were created in accordance with the Unified Soil Classification System as described in the American Society of Testing and Materials (ASTM) Standard D248890 (ASTM, 1990). Soil samples were collected for chemical analysis at approximately 2-foot intervals until first water was encountered (approximately 12 feet bgs). Lithologic information is included on the boring logs in Appendix A.

Soil samples were collected in butyl-acetate liners. Immediately after sample collection, the ends of the samples were sealed with Teflon sheeting, plastic end-caps, and duct tape. The soil samples were then labeled, placed in an ice-cooled chest, and delivered under Geomatrix chain-of-custody procedures to Entech Labs (Entech), of Sunnyvale, California (a state-certified analytical laboratory).

5.2 GRAB GROUNDWATER SAMPLING METHODS

Grab groundwater samples were collected by installing a ¾-inch diameter temporary polyvinyl chloride (PVC) casing consisting of approximately 10 feet of blank PVC and 5 to 10 feet of well screen (0.01 inch slot) attached to the blank PVC. The PVC was installed inside the drive casing, which was withdrawn thereby exposing the screen to water-yielding sediments. Groundwater samples were collected using dedicated disposable bailers and transferred into laboratory-supplied and appropriately preserved sample containers. The samples were labeled, placed in an ice-cooled chest, and transferred under chain-of-custody procedures to Entech.

After all the samples were collected, the borings were backfilled with bentonite chips and hydrated. Soil cuttings from the borings were contained in a 5-gallon labeled bucket and stored on site. The wash water generated during sampling activities was contained in a 55-gallon labeled drum and stored on site.

5.3 ANALYTICAL METHODS

Soil samples were analyzed for polynuclear aromatic hydrocarbons (PNAs) using United States Environmental Protection Agency (EPA) Method 8270 SIMS, total petroleum hydrocarbons quantified as gasoline (TPHg), as diesel (TPHd), and as motor oil (TPHm) using EPA Method 8015M.

Groundwater samples were analyzed for volatile organic compounds (VOCs) using EPA Method 8260; and TPHg, TPHd, and TPHm using EPA Method 8015M. A silica gel clean up procedure was performed prior to analysis of all TPHd and TPHm samples in order to remove polar biogenic material that could cause positive interference. Table 1 presents the sampling plan used for the investigation.

6.0 FINDINGS

6.1 LITHOLOGY AND FIELD OBSERVATIONS

The survey performed by Cruz Brothers did not detect the presence of an underground storage tank. However, some sheet metal and concrete debris was found buried 1-foot bgs in the area of the former gasoline tank identified in the Phase I investigation. Soil boring GMX-3 was located adjacent to the debris area.

The soil consisted primarily of silt and sand. Lithologic information is included on the boring logs in Appendix A. Groundwater was encountered during drilling at a depth of approximately 12 feet bgs.

6.2 SOIL AND GROUNDWATER SAMPLE RESULTS

PNAs, TPHg, TPHd, TPHm, and VOCs were not detected in any of the soil and groundwater samples analyzed. Table 2 summarizes the samples that were tested, the analytical methods used, and the respective reporting limits for each analysis. The laboratory analytical report and chain-of-custody records for the soil and groundwater samples are included in Appendix B.

7.0 SUMMARY OF FINDINGS

The results of the limited Phase II investigation are summarized as follows:

- Groundwater was encountered at a depth of approximately 12 feet bgs.
- An underground storage tank was not found in the area of the former Standard Oil facility.
- All analytical results for soil and groundwater samples were below laboratory reporting limits.

Based on the results from the Phase II investigation, it appears that no significant environmental impact has occurred at the site from the former presence of a Standard Oil facility on site.

8.0 REFERENCES

Flour Daniel GTI, 1997, Additional Site Investigation report for former Chevron Site No. 9-0796, 4991 Carpinteria Avenue, Carpinteria, California, June 15.

Geomatrix Consultants, Inc., 1999, Preliminary Site Assessment, Carpinteria Sale Property, Carpinteria, California, July 20, 1999.

Secor International, Inc., 1996, Additional Assessment Workplan, ARCO Station 1980, 1116 Casitas Pass Road, Carpinteria, California, June 17.

GEOMATRIX

TABLE 1

SAMPLING PLAN

Limited Phase II Investigation
Carpinteria, California

Boring Location	Depth of Soil Sample Analyzed				Groundwater		
		TPHd/m	TPHg	PNAs	TPHd/m	TPHg	VOCs
GMX-1	2	X		X	X	X	X
	6	X	X	X			
	to awt[1]	hold					
GMX-2	2	X		X	X	X	X
	6	X	X	X			
	to awt						
GMX-3	2	X		X	X	X	X
	6	X	X	X			
	to awt	hold					

Notes:

1. awt = Sample collected above the groundwater table; encountered at approxmiately 12 feet below ground surface.
2. hold = Sample collected and placed on hold pending results of initial analysis.

Abbreviations:

TPHg = total petroleum hydrocarbons quantified as gasoline analyzed by EPA Method 8015;TPH/dm = total petroleum hydrocarbons quantified as diesel and motor oil analyzed by EPA Method 8015 following silica gel cleanup procedures;
VOCs = volatile organic compounds analyzed by EPA Method 8260; PNAs = polynuclear aromatic compounds analyzed by EPA Method 8270 SIM.

GEOMATRIX

TABLE 2

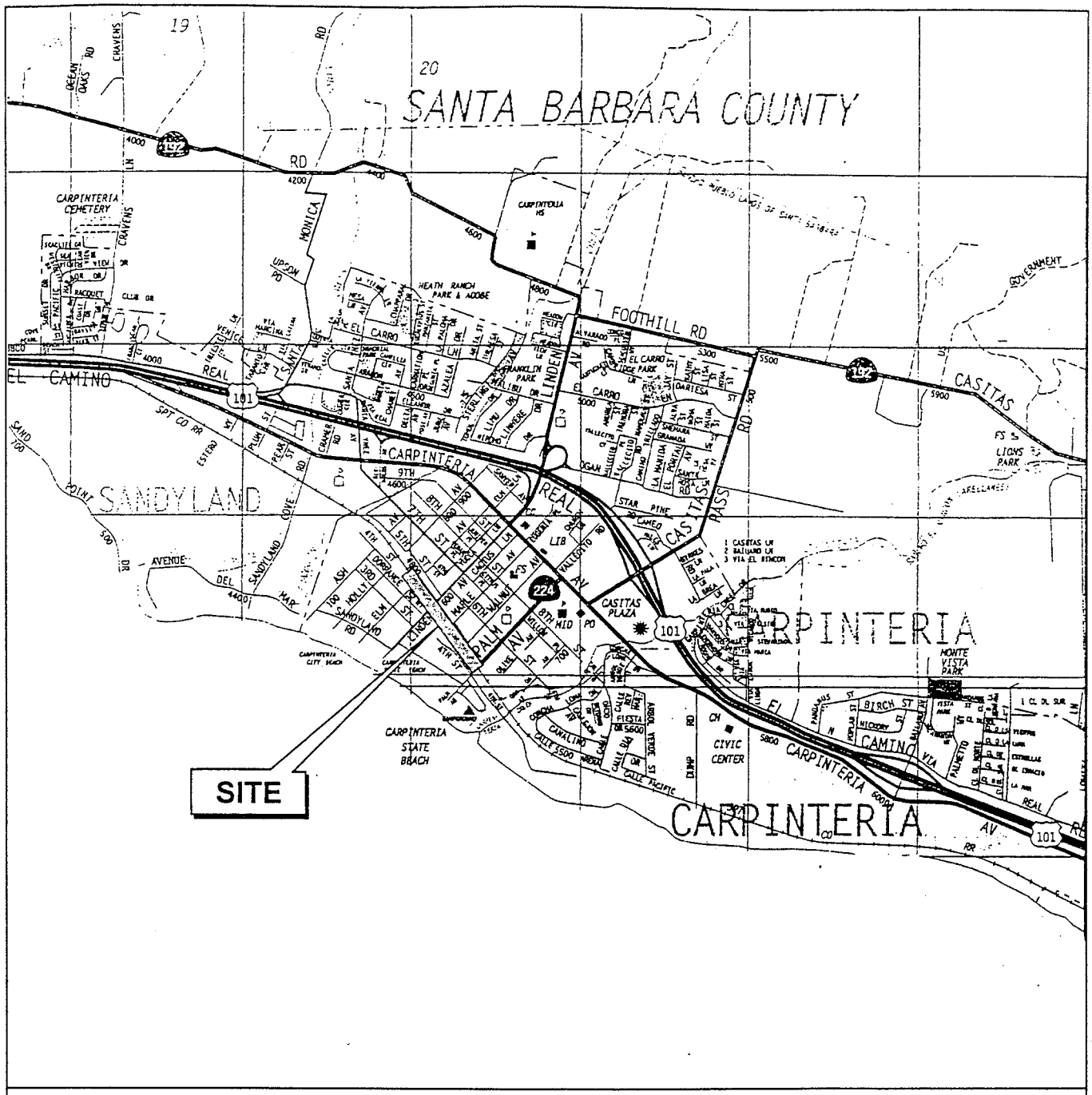
ANALYTICAL RESULTS

Limited Phase II Investigation
Carpinteria, California

Boring Location	Depth of Soil Sample Analyzed (feet)	Soil (mg/kg)				Groundwater (ug/l)			
		TPHd	TPHm	TPHg	PNAs	TPHd	TPHm	TPHg	VOCs
GMX-1	2	<1.0	<13		<.01	<50	<250	<50	All ND[1]
	6	<1.0	<13	<1.0	<.01				
GMX-2	2	<1.0	<13		<.01	<50	<250	<50	All ND
	6	<1.0	<13	<1.0	<.01				
GMX-3	2	<1.0	<13		<.01	<50	<250	<50	All ND
	6	<1.0	<13	<1.0	<.01				

Notes:
1. ND= not detected above laboratory detection limit; dectection limits ranged for VOCs from 5 to 100 ug/l.

Abbreviations:
TPHg = total petroleum hydrocarbons quantified as gasoline analyzed by EPA Method 8015;TPHd/m = total petroleum hydrocarbons quantified as diesel and motor oil analyzed by EPA Method 8015 following silica gel cleanup procedures; VOCs = volatile organic compounds analyzed by EPA Method 8260; PNAs = polynuclear aromatic compounds analyzed by EPA Method 8270 SIM.



Base map from *The Thomas Bros. Guide, Santa Barbara and San Luis Obispo Counties, 1997 Edition.*

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GEOMATRIX

SITE LOCATION MAP
Union Pacific Railroad
Carpinteria, California

Figure
1

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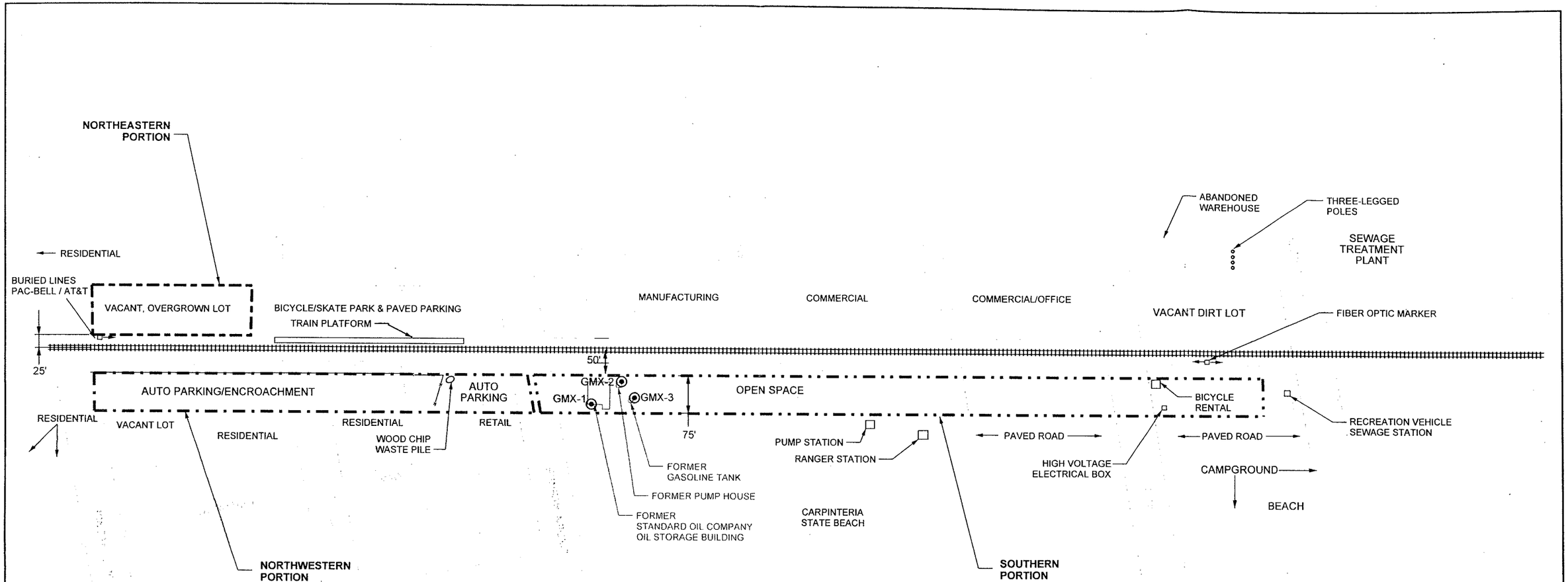

EXPLANATION

⊙ SOIL AND GRAB GROUNDWATER SAMPLE LOCATION

SALE PROPERTY BOUNDARIES:

– – – – NORTHEASTERN PORTION

– · – · – NORTHWESTERN PORTION

· – · · – SOUTHERN PORTION

0 200

SCALE IN FEET

Note:
1. Base map provided by Union Pacific Railroad Real Estate Department.
2. Location of historical features based on 1929 Sanborn FIre Insurance Map.
3. Site conditions and features based on June 29, 1999 Geomatrix field visit.

SITE PLAN AND SAMPLING LOCATIONS
Union Pacific Railroad
Carpinteria, California

GEOMATRIX	Project No. 4221.020 L	Figure 2

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PROJECT: UPPR-Carpinteria	Log of Boring No. GMX-2	
BORING LOCATION: By former pump house	ELEVATION AND DATUM: Ground Surface	
DRILLING CONTRACTOR: Gregg Drilling and Testing, Inc.	DATE STARTED: 8/16/99	DATE FINISHED: 8/16/99
DRILLING METHOD: Direct Push	TOTAL DEPTH (ft.): 20.0	MEASURING POINT: Ground Surface
DRILLING EQUIPMENT: S27 Power Probe 9600+	DEPTH TO WATER: FIRST 14	COMPL. NA
SAMPLING METHOD: Direct Push	LOGGED BY: Chris Posch	
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: Gary Foote	REG. NO. RG 5044

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	PID READING (ppm)	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation: Ground Surface	REMARKS
1	GMX-2-2			0	SILT with SAND (ML): Brown (10 YR 4/3), Moist, 85% fines, 15% fine sand, low plasticity, soft, roots present.	OVM= Thermo Environmental Instruments 580 PID calibrated with 100 ppm isobutylene standard
2						
3	GMX-2-4			0		
4						
5	GMX-2-6					
6					SANDY SILT (ML): brown (10 YR 4/3), Moist, 55% fines, 45% fine to coarse sand, low plasticity, soft.	
7						
8	GMX-2-8					
9						
10	GMX-2-10					
11					SILT with SAND (ML): brown (10 YR 4/3), Wet, 75% fines, 25% fine to coarse sand, medium plasticity, soft.	
12	GMX-2-12				No Soil Logging: from 12' to 20' pushed expendable tip without obtaining soil core	
13						
14						
15						

APPENDIX A

BORING LOGS

PROJECT: UPPR-Carpinteria

Log of Boring No. GMX-1

BORING LOCATION: By former Storage Building	ELEVATION AND DATUM: Ground Surface
DRILLING CONTRACTOR: Gregg Drilling and Testing, Inc.	DATE STARTED: 8/16/99 / DATE FINISHED: 8/16/99
DRILLING METHOD: Direct Push	TOTAL DEPTH (ft.): 16.0 / MEASURING POINT: Ground Surface
DRILLING EQUIPMENT: S27 Power Probe 9600+	DEPTH TO WATER: FIRST 12 / COMPL. NA
SAMPLING METHOD: Direct Push	LOGGED BY: Chris Posch
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: Gary Foote / REG. NO. RG 5044

DEPTH (feet)	SAMPLES: Sample No.	Sample	Blows/ Foot	PID READING (ppm)	DESCRIPTION: NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
					Surface Elevation: Ground Surface	
1–6	GMX-1-2, GMX-1-4, GMX-1-6			0	SILT with SAND (ML): Brown (10 YR 4/3), Moist, 85% fines, 15% fine sand, low plasticity, soft.	OVM= Thermo Environmental Instruments 580 PID calibrated with 100 ppm isobutylene standard
7					SILTY SAND (SM): brown (10 YR 4/3), Moist, 85% fine to coarse sand, 15% low plasticity fines.	
8	GMX-1-8			0	SANDY SILT (ML): brown (10 YR 4/3), Moist, 55% fines, 45% fine to coarse sand, low plasticity, soft.	
9–15	GMX-1-10, GMX-1-12, GMX-1-14			0	SILTY SAND (SM): brown (10 YR 4/3), Moist, 55% fine to medium sand, 45% low plasticity fines.	

PROJECT: UPPR-Carpinteria

Log of Boring No. GMX-1 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	PID READING (ppm)	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
16	GMX-1-16	■			LEAN CLAY (CL): brown (10 YR 4/3), Wet, 80% fines, 20% fine to medium sand, medium plasticity, soft to firm.	
					Bottom of boring at 16 feet	Borehole destroyed using bentonite chips placed from total depth to ground surface and hydrated.
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						
33						

OAKBOREV (REV. 7/99)

PROJECT: UPPR-Carpinteria

Log of Boring No. GMX-2 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	PID READING (ppm)	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
16						
17						
18						
19						
20					Bottom of boring at 20 feet	Borehole destroyed using bentonite chips placed from total depth to ground surface and hydrated.
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						
33						

PROJECT: UPPR-Carpinteria	**Log of Boring No. GMX-3**
BORING LOCATION: By former gasoline tank	ELEVATION AND DATUM: Ground Surface
DRILLING CONTRACTOR: Gregg Drilling and Testing, Inc.	DATE STARTED: 8/16/99 / DATE FINISHED: 8/16/99
DRILLING METHOD: Direct Push	TOTAL DEPTH (ft.): 16.0 / MEASURING POINT: Ground Surface
DRILLING EQUIPMENT: S27 Power Probe 9600+	DEPTH TO WATER: FIRST 14 / COMPL. NA
SAMPLING METHOD: Direct Push	LOGGED BY: Chris Posch
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: Gary Foote / REG. NO. RG 5044

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	PID READING (ppm)	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation: Ground Surface	REMARKS
0				0		
1					SILT with SAND (ML): Brown (10 YR 4/3), Moist, 85% fines, 15% fine to medium sand, low to medium plasticity, soft, metal pieces and rust from 0 to 2 feet.	OVM= Thermo Environmental Instruments 580 PID calibrated with 100 ppm isobutylene standard
2	GMX-3-2					
3						
4	GMX-3-4			0		
5						
6	GMX-3-6				SANDY SILT (ML): brown (10 YR 4/3), Moist, 55% fines, 45% fine to coarse sand, low plasticity, soft.	
7						
8	GMX-3-8					
9						
10	GMX-3-10					
11					Firm	
12	GMX-3-12					
13						
14	GMX-3-14				LEAN CLAY (CL): brown (10 YR 4/3), Wet, 80% fines, 20% fine to medium sand, medium plasticity, firm.	
15						

PROJECT: UPPR-Carpinteria

Log of Boring No. GMX-3 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	PID READING (ppm)	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
16	GMX-3-16	■			Bottom of boring at 16 feet	Borehole destroyed using bentonite chips placed from total depth to ground surface and hydrated.
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						
33						

OAKBOREV (REV. 7/99)

GEOMATRIX

APPENDIX B

CHAIN-OF-CUSTODY RECORD AND ANALYTICAL LABORATORY REPORT

Entech Analytical Labs, Inc.

525 Del Rey Avenue, Suite E
Sunnyvale, CA 94086

QUALITY CONTROL RESULTS SUMMARY

METHOD: Gas Chromatography
Matrix Spike and Matrix Spike Duplicate

QC Batch #: GBG1990818
Matrix: Water
Units: µg/Liter

Date Analyzed: 08/18/99
Quality Control Sample: 15857-001

PARAMETER	Method #	MB µg/Liter	SA µg/Liter	SR g/Liter	SP µg/Liter	**SP % R**	SPD µg/Liter	**SPD %R**	RPD	QC LIMITS RPD	QC LIMITS %R
Benzene	8020	<0.50	3.6	ND	3.2	**89**	3.1	**86**	3.2	25	69-118
Toluene	8020	<0.50	25.0	ND	25	**102**	25	**98**	3.6	25	79-122
Ethyl Benzene	8020	<0.50	5.0	ND	5.1	**102**	4.9	**98**	4.0	25	77-114
Xylenes	8020	<0.50	25.0	ND	28	**111**	27	**106**	4.1	25	79-129
Gasoline	8015	<50.0	500	ND	462	**92**	444	**89**	3.8	25	75-125
aaa-TFT(S.S.)-PID	8020			90%	99%		99%				65-135
aaa-TFT(S.S.)-FID	8015			103%	106%		107%				65-135

Calculated Recoveies Outside of Control Limits:

Definition of Terms:

na: Not Analyzed in QC batch
MB: Method Blank
SA: Spike Added
SR: Sample Result
RPD(%): Duplicate Analysis - Relative Percent Difference
SP: Spike Result
SP (%R): Spike % Recovery
SPD: Spike Duplicate Result
SPD (%R): Spike % Recovery
NC: Not Calculated

Entech Analytical Labs, Inc.

525 Del Rey Avenue, Suite E
Sunnyvale, CA 94086

QUALITY CONTROL RESULTS SUMMARY

METHOD: Gas Chromatography
Laboratory Control Sample

QC Batch #: GBG1990818
Matrix: Water
Units: µg/Liter

Date Analyzed: 08/18/99
Quality Control Sample: Blank Spike

PARAMETER	Method #	MB µg/Liter	SA µg/Liter	SR µg/Liter	SP µg/Liter	**SP % R**	SPD µg/Liter	**SPD %R**	RPD	QC LIMITS RPD	QC LIMITS %R
Benzene	8020	<0.50	3.6	ND	3.1	**86**	3.3	**92**	6.2	25	69-118
Toluene	8020	<0.50	25.0	ND	25	**101**	26	**102**	1.2	25	82-122
Ethyl Benzene	8020	<0.50	5.0	ND	5.0	**100**	5.1	**102**	2.0	25	77-114
Xylenes	8020	<0.50	25.0	ND	27	**109**	28	**112**	2.2	25	85-125
Gasoline	8015	<50.0	500	ND	476	**95**	462	**92**	3.0	25	75-125
aaa-TFT(S.S.)-PID	8020			89%	98%		96%				65-135
aaa-TFT(S.S.)-FID	8015			102%	105%		106%				65-135

Definition of Terms:

- na: Not Analyzed in QC batch
- MB: Method Blank
- SA: Spike Added
- SR: Sample Result
- RPD(%): Duplicate Analysis - Relative Percent Difference
- SP: Spike Result
- SP (%R): Spike % Recovery
- SPD: Spike Duplicate Result
- SPD (%R): Spike % Recovery
- nc: Not Calculated

CHAIN-OF-CUSTODY RECORD

Nº 12202

Date: 8-16-99

Page 1 of 1

Project No.: 1221.02c

Samplers (Signatures): Chris Fosch

Date	Time	Sample Number	EPA Method 8010	EPA Method 8020	EPA Method 8020 (BTEX only)	EPA Method 8240	EPA Method 8270	TPH as gasoline	TPH as diesel			TPH d/m		8260		HOLD				Cooled	Soil (S), Water (W), or Vapor (V)	Acidified	Number of containers
8-16	1230	GMX-1						X				X		X			15857	-001		Y	W	Y/N	3/2
	1300	GMX-2						X				X		X			15857	-002		Y	W	Y/N	3/2
	1530	GMX-3						X				X		X			15857	-003		Y	W	Y/N	3/1
	1600	Dup														X	15857	-005		Y	W	Y	3
8-4	725	Trip Blank						X						X			15857	-004		Y	W	Y	2

Turnaround time: Standard

Results to: Chris Fosch

Total No. of containers: 19

REMARKS

Additional Comments

Union Pacific Sub - Bill directly!

TPH d/m by EPA 8015 following Silica Gel Cleanup

TPH g by 8015

Relinquished by (signature)	Date	Time	Relinquished by (signature)	Date	Time	Relinquished by (signature)	Date	Time
Chris Fosch	8/17	1500						
Printed Name: CHRIS Fosch			Printed Name:			Printed Name:		
Company: Geomatrix			Company:			Company:		
Received by (signature)	**Date**	**Time**	**Received by (signature)**	**Date**	**Time**	**Received by (signature)**	**Date**	**Time**
Jennifer Durkin	8/17	15:04						
Printed Name: Jennifer Durkin			Printed Name:			Printed Name:		
Company: Entech			Company:			Company:		

Method of Shipment: drop off

Laboratory Comments and Log No.:

5 Day TAT Firm

Geomatrix Consultants
100 Pine Street, 10th Floor
San Francisco, California 94111
415 434 9400

Entech Analytical Labs, Inc.

CA ELAP# I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Certified Analytical Report
Volatile Organic Compounds by EPA Method 8260B

Client: Geomatrix Consultants
Sample Matrix: Water
Sample Date/Time: 8/24/99
Lab #: Method Blank
Client ID:

Date Reported: 8/24/99
Date Received: 8/24/99
Date Analyzed: 8/24/99
Dilution Factor: 1

Compound	Value	PQL	DLR	Compound	Value	PQL	DLR
1,1-Dichloropropene	ND	5	5	Tetrachloroethene	ND	5	5
cis-1,3-Dichloropropene	ND	5	5	Toluene	ND	5	5
trans-1,3-Dichloropropene	ND	5	5	1,2,3-Trichlorobenzene	ND	5	5
Diisopropyl Ether	ND	5	5	1,2,4-Trichlorobenzene	ND	5	5
Ethyl Methacrylate	ND	5	5	1,2,3-Trichloropropane	ND	5	5
Ethylbenzene	ND	5	5	1,1,1-Trichloroethane	ND	5	5
Hexachlorobutadiene	ND	5	5	1,1,2-Trichloroethane	ND	5	5
2-Hexanone	ND	20	20	Trichloroethene	ND	5	5
Iodomethane	ND	5	5	Trichlorofluoromethane	ND	5	5
Isopropylbenzene	ND	5	5	1,2,4-Trimethylbenzene	ND	5	5
p-Isopropyltoluene	ND	5	5	1,3,5-Trimethylbenzene	ND	5	5
Methacrylonitrile	ND	5	5	Xylenes (total)	ND	5	5
Methyl Methacrylate	ND	5	5	Vinyl Chloride	ND	5	5
4-Methyl-2-Pentanone (MIBK)	ND	20	20				
Methyl-tert-butyl Ether	ND	5	5				
Methylene Chloride	ND	5	5				
Naphthalene	ND	5	5				
Pentachloroethane	ND	5	5				
2-Picoline	ND	5	5				
n-Propylbenzene	ND	5	5				
Styrene	ND	5	5				
1,1,1,2-Tetrachloroethane	ND	5	5				
1,1,2,2-Tetrachloroethane	ND	5	5				

Surrogate	Recovery (%)
Dibromofluoromethane	86
Toluene-d8	97
4-Bromofluorobenzene	86

1. Results are reported in ug/Liter (ppb)
2. DLR= DF x PQL
3. Analysis performed by Entech Analytical Labs. Inc. (CAELAP #I-2346)

Michelle L. Anderson, Lab Director

ND: None Detected at or above DLR
DLR: Detection Reporting Limit

PQL: Practical Quantitation Limit
DF: Dilution Factor

Entech Analytical Labs, Inc.

525 Del Rey Avenue, Suite E
Sunnyvale, CA 94086

QUALITY CONTROL RESULTS SUMMARY

Volatile Organic Compounds
Laboratory Control Sample

QC Batch #: WGCMS990824
Matrix: Water
Units: µg/L

Date analyzed: 08/24/99
Spiked Sample: Blank Spike

PARAMETER	Method #	SA µg/L	SR µg/L	SP µg/L	SP %R	SPD µg/L	SPD %R	RPD	QC LIMITS RPD	QC LIMITS %R
1,1- Dichloroethene	8240/8260	25	ND	31	**122**	26	**104**	16.6	25	50-150
Methyl-tert-butyl ether	8240/8260	25	ND	30	**119**	30	**121**	1.7	25	50-150
Benzene	8240/8260	25	ND	29	**116**	26	**105**	9.8	25	50-150
Trichloroethene	8240/8260	25	ND	32	**128**	29	**117**	9.1	25	50-150
Toluene	8240/8260	25	ND	29	**114**	26	**106**	8.0	25	50-150
Chlorobenzene	8240/8260	25	ND	29	**117**	27	**107**	8.9	25	50-150
Surrogates										
Dibromofluoromethane	8240/8260		86%	99%		96%				65-135
MTBE-d3	8240/8260		87%	119%		103%				65-135
Toluene -d8	8240/8260		97%	97%		99%				65-135
4-Bromofluorobenzene	8240/8260		86%	96%		99%				65-135

Definition of Terms:

na: Not Analyzed in QC batch
SA: Spike Added
SR: Sample Result
RPD(%): Duplicate Analysis - Relative Percent Difference
SP: Spike Result
SP (%R): Spike % Recovery
SPD: Spike Duplicate Result
SPD (%R): Spike Duplicate % Recovery

Client: Entech Analytical Labs, Inc.
Attn: Michelle Anderson

Client's Project: Geomatrix Consultants

Date Received: 08/18/99
Extraction Method: 3550B
Matrix: Soil
Units: ug/kg

EPA Method 8270C SIM (PAH's only)

Lab No.:	Method Blank		37759-001									
Client Sample I.D.:	--		15847-001									
Date Sampled:	--		08/16/99									
QC Batch #:	S998270S234		S998270S234									
Date Extracted:	08/19/99		08/19/99									
Date Analyzed:	08/19/99		08/19/99									
Analyst Initials:	HL		HL									
Dilution Factor:	1		1									

ANALYTE	MDL	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results
Naphthalene	10	10	ND	10	ND								
Acenaphthylene	10	10	ND	10	ND								
Acenaphthene	10	10	ND	10	ND								
Fluorene	10	10	ND	10	ND								
Phenanthrene	10	10	ND	10	ND								
Anthracene	10	10	ND	10	ND								
Fluoranthene	10	10	ND	10	ND								
Pyrene	10	10	ND	10	ND								
Benzo(a)anthracene	10	10	ND	10	ND								
Chrysene	10	10	ND	10	ND								
Benzo(b)fluoranthene	10	10	ND	10	ND								
Benzo(k)fluoranthene	10	10	ND	10	ND								
Benzo(a)pyrene	10	10	ND	10	ND								
Indeno(1,2,3-cd)pyrene	10	10	ND	10	ND								
Dibenzo(a,h)anthracene	10	10	ND	10	ND								
Benzo(ghi)perylene	10	10	ND	10	ND								

Surrogate Recovery	%Rec.	Limits	%Rec.	Limits								
1,2-Dichlorobenzene	81	17-97	93	17-97								
Nitrobenzene-d5	57	20-100	76	20-100								
2-Fluorobiphenyl	82	21-114	110	21-114								
Terphenyl-d14	118	17-130	140*	17-130								

MDL = Method Detection Limit
DLR = MDL X Dilution Factor
ND = Not Detected (Below DLR).
NA = Not Analyzed
* = High Surrogate recovery due to matrix interference

Approved/Reviewed By: _____ Date: 8/24/99

Sylvia Chan
Semi Volatiles Group Leader

The cover letter is an integral part of this analytical report.

Advanced Technology Laboratories
1510 E. 33rd Street Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

Client: Entech Analytical Labs, Inc.
Attn: Michelle Anderson

Client's Project: Geomatrix Consultants

Date Received: 08/18/99
Extraction Method: 3550B
Matrix: Soil
Units: ug/kg

EPA Method 8270C SIM (PAH's only)

Lab No.:	37759-002												
Client Sample I.D.:	15847-002												
Date Sampled:	08/16/99												
QC Batch #:	S998270S234												
Date Extracted:	08/19/99												
Date Analyzed:	08/19/99												
Analyst Initials:	HL												
Dilution Factor:	1												

ANALYTE	MDL	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results
Naphthalene	10	10	ND										
Acenaphthylene	10	10	ND										
Acenaphthene	10	10	ND										
Fluorene	10	10	ND										
Phenanthrene	10	10	ND										
Anthracene	10	10	ND										
Fluoranthene	10	10	ND										
Pyrene	10	10	ND										
Benzo(a)anthracene	10	10	ND										
Chrysene	10	10	ND										
Benzo(b)fluoranthene	10	10	ND										
Benzo(k)fluoranthene	10	10	ND										
Benzo(a)pyrene	10	10	ND										
Indeno(1,2,3-cd)pyrene	10	10	ND										
Dibenzo(a,h)anthracene	10	10	ND										
Benzo(ghi)perylene	10	10	ND										

Surrogate Recovery	%Rec.	Limits										
1,2-Dichlorobenzene	89	17-97										
Nitrobenzene-d5	50	20-100										
2-Fluorobiphenyl	90	21-114										
Terphenyl-d14	112	17-130										

MDL = Method Detection Limit
DLR = MDL X Dilution Factor

ND = Not Detected (Below DLR).
NA = Not Analyzed

Approved/Reviewed By: _____ Date: 8/24/99

Sylvia Chan
Semi Volatiles Group Leader

The cover letter is an integral part of this analytical report.

Client: Entech Analytical Labs, Inc.
Attn: Michelle Anderson

Client's Project: Geomatrix Consultants

Date Received: 08/18/99
Extraction Method: 3550B
Matrix: Soil
Units: ug/kg

EPA Method 8270C SIM (PAH's only)

Lab No.:	37759-003
Client Sample I.D.:	15847-003
Date Sampled:	08/16/99
QC Batch #:	S998270S234
Date Extracted:	08/19/99
Date Analyzed:	08/19/99
Analyst Initials:	HL
Dilution Factor:	1

ANALYTE	MDL	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results
Naphthalene	10	10	ND										
Acenaphthylene	10	10	ND										
Acenaphthene	10	10	ND										
Fluorene	10	10	ND										
Phenanthrene	10	10	ND										
Anthracene	10	10	ND										
Fluoranthene	10	10	ND										
Pyrene	10	10	ND										
Benzo(a)anthracene	10	10	ND										
Chrysene	10	10	ND										
Benzo(b)fluoranthene	10	10	ND										
Benzo(k)fluoranthene	10	10	ND										
Benzo(a)pyrene	10	10	ND										
Indeno(1,2,3-cd)pyrene	10	10	ND										
Dibenzo(a,h)anthracene	10	10	ND										
Benzo(ghi)perylene	10	10	ND										

Surrogate Recovery	%Rec.	Limits
1,2-Dichlorobenzene	85	17-97
Nitrobenzene-d5	85	20-100
2-Fluorobiphenyl	91	21-114
Terphenyl-d14	115	17-130

MDL = Method Detection Limit
DLR = MDL X Dilution Factor

ND = Not Detected (Below DLR).
NA = Not Analyzed

Approved/Reviewed By: _____ Date: 8/24/99

Sylvia Chan
Semi Volatiles Group Leader

The cover letter is an integral part of this analytical report.

Advanced Technology Laboratories
1510 E. 33rd Street Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

Client: Entech Analytical Labs, Inc.
Attn: Michelle Anderson

Client's Project: Geomatrix Consultants

Date Received: 08/18/99
Extraction Method: 3550B
Matrix: Soil
Units: ug/kg

EPA Method 8270C SIM (PAH's only)

Lab No.:	37759-004											
Client Sample I.D.:	15847-004											
Date Sampled:	08/16/99											
QC Batch #:	S998270S234											
Date Extracted:	08/19/99											
Date Analyzed:	08/19/99											
Analyst Initials:	HL											
Dilution Factor:	1											

ANALYTE	MDL	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results
Naphthalene	10	10	ND										
Acenaphthylene	10	10	ND										
Acenaphthene	10	10	ND										
Fluorene	10	10	ND										
Phenanthrene	10	10	ND										
Anthracene	10	10	ND										
Fluoranthene	10	10	ND										
Pyrene	10	10	ND										
Benzo(a)anthracene	10	10	ND										
Chrysene	10	10	ND										
Benzo(b)fluoranthene	10	10	ND										
Benzo(k)fluoranthene	10	10	ND										
Benzo(a)pyrene	10	10	ND										
Indeno(1,2,3-cd)pyrene	10	10	ND										
Dibenzo(a,h)anthracene	10	10	ND										
Benzo(ghi)perylene	10	10	ND										

Surrogate Recovery	%Rec.	Limits										
1,2-Dichlorobenzene	92	17-97										
Nitrobenzene-d5	62	20-100										
2-Fluorobiphenyl	65	21-114										
Terphenyl-d14	126	17-130										

MDL = Method Detection Limit
DLR = MDL X Dilution Factor

ND = Not Detected (Below DLR).
NA = Not Analyzed

Approved/Reviewed By: _____ Date: 8/24/99

Sylvia Chan
Semi Volatiles Group Leader

The cover letter is an integral part of this analytical report.

Client: Entech Analytical Labs, Inc.
Attn: Michelle Anderson

Client's Project: Geomatrix Consultants

Date Received: 08/18/99
Extraction Method: 3550B
Matrix: Soil
Units: ug/kg

EPA Method 8270C SIM (PAH's only)

Lab No.:	37759-005											
Client Sample I.D.:	15847-005											
Date Sampled:	08/16/99											
QC Batch #:	S998270S234											
Date Extracted:	08/19/99											
Date Analyzed:	08/19/99											
Analyst Initials:	HL											
Dilution Factor:	1											

ANALYTE	MDL	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results
Naphthalene	10	10	ND										
Acenaphthylene	10	10	ND										
Acenaphthene	10	10	ND										
Fluorene	10	10	ND										
Phenanthrene	10	10	ND										
Anthracene	10	10	ND										
Fluoranthene	10	10	ND										
Pyrene	10	10	ND										
Benzo(a)anthracene	10	10	ND										
Chrysene	10	10	ND										
Benzo(b)fluoranthene	10	10	ND										
Benzo(k)fluoranthene	10	10	ND										
Benzo(a)pyrene	10	10	ND										
Indeno(1,2,3-cd)pyrene	10	10	ND										
Dibenzo(a,h)anthracene	10	10	ND										
Benzo(ghi)perylene	10	10	ND										

Surrogate Recovery	%Rec.	Limits										
1,2-Dichlorobenzene	84	17-97										
Nitrobenzene-d5	60	20-100										
2-Fluorobiphenyl	90	21-114										
Terphenyl-d14	121	17-130										

MDL = Method Detection Limit
DLR = MDL X Dilution Factor

ND = Not Detected (Below DLR).
NA = Not Analyzed

Approved/Reviewed By: _____ Date: 8/24/99

Sylvia Chan
Semi Volatiles Group Leader

The cover letter is an integral part of this analytical report.

Client: Entech Analytical Labs, Inc.
Attn: Michelle Anderson

Client's Project: Geomatrix Consultants

Date Received: 08/18/99
Extraction Method: 3550B
Matrix: Soil
Units: ug/kg

EPA Method 8270C SIM (PAH's only)

Lab No.:	37759-006												
Client Sample I.D.:	15847-006												
Date Sampled:	08/16/99												
QC Batch #:	S998270S234												
Date Extracted:	08/18/99												
Date Analyzed:	08/19/99												
Analyst Initials:	HL												
Dilution Factor:	1												

ANALYTE	MDL	DLR	Results	DLR	Results	DLR	Results	DLR	Result	DLR	Results	DLR	Results
Naphthalene	10	10	ND										
Acenaphthylene	10	10	ND										
Acenaphthene	10	10	ND										
Fluorene	10	10	ND										
Phenanthrene	10	10	ND										
Anthracene	10	10	ND										
Fluoranthene	10	10	ND										
Pyrene	10	10	ND										
Benzo(a)anthracene	10	10	ND										
Chrysene	10	10	ND										
Benzo(b)fluoranthene	10	10	ND										
Benzo(k)fluoranthene	10	10	ND										
Benzo(a)pyrene	10	10	ND										
Indeno(1,2,3-cd)pyrene	10	10	ND										
Dibenzo(a,h)anthracene	10	10	ND										
Benzo(ghi)perylene	10	10	ND										

Surrogate Recovery	%Rec.	Limits										
1,2-Dichlorobenzene	88	17-97										
Nitrobenzene-d5	42	20-100										
2-Fluorobiphenyl	97	21-114										
Terphenyl-d14	102	17-130										

MDL = Method Detection Limit
DLR = MDL X Dilution Factor
ND = Not Detected (Below DLR).
NA = Not Analyzed

Approved/Reviewed By: _____ Date: 8/24/99

Sylvia Chan
Semi Volatiles Group Leader

The cover letter is an integral part of this analytical report.

Client: Entech Analytical Labs, Inc.
Attn: Michelle Anderson

Client's Project: Geomatrix Consultants

Date Received: 08/18/99
Extraction Method: 3550B
Matrix: ---
Units: ---

EPA Method 8270C SIM (PAH's only)

Lab No.:		LCS											
Client Sample I.D.:		---											
Date Sampled:		---											
QC Batch #:		S998270S234											
Date Extracted:		08/18/99											
Date Analyzed:		08/19/99											
Analyst Initials:		HL											
Dilution Factor:		1											
ANALYTE	MDL	Limits	%Rec	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results
Naphthalene	10	11-182	108										
Acenaphthylene	10	11-182	107										
Acenaphthene	10	11-182	96										
Fluorene	10	11-182	96										
Phenanthrene	10	11-182	119										
Anthracene	10	11-182	97										
Fluoranthene	10	11-182	129										
Pyrene	10	11-182	123										
Benzo(a)anthracene	10	11-182	146										
Chrysene	10	11-182	107										
Benzo(b)fluoranthene	10	11-182	151										
Benzo(k)fluoranthene	10	11-182	126										
Benzo(a)pyrene	10	11-182	134										
Indeno(1,2,3-cd)pyrene	10	11-182	119										
Dibenzo(a,h)anthracene	10	11-182	133										
Benzo(ghi)perylene	10	11-182	108										

MDL = Method Detection Limit
DLR = MDL X Dilution Factor

ND = Not Detected (Below DLR).
NA = Not Analyzed

Approved/Reviewed By: [signature]
Sylvia Chan
Semi Volatiles Group Leader

Date: 08/26/99

The cover letter is an integral part of this analytical report.

Spike Recovery and RPD Summary Report - SOIL (NG/KG)

Method : D:\HPCHEM\1\METHODS\SIM0820.M (RTE Integrator)
Title : EPA 8270C Advanced Technology Laboratory
Last Update : Fri Jul 30 14:35:59 1999
Response via : Initial Calibration

Non-Spiked Sample: S0819016.D

	Spike Sample	Spike Duplicate Sample
File ID :	S0819009.D	S0819010.D
Sample :	S234 37759-06 MS	S234 37759-06 MSD
Acq Time:	19 Aug 1999 1:45 pm	19 Aug 1999 2:25 pm

Compound	Sample Conc	Spike Added	Spike Res	Dup Res	Spike %Rec	Dup %Rec	RPD	QC Limits RPD	QC Limits % Rec
Acenaphthene	0.0	500	470	442	94	88	6	17	46- 94
Pyrene	0.0	500	612	509	122#	102	18#	16	36-114

QCBATCH# S99827S234
- Fails Limit Check, However, Lcs was within Qc limits.

Reviewed/Approved By: Compton Pernas Jr Date 08/24/99
Sylvia Chan
Semi-vol Group Leader

Entech Analytical Labs, Inc.

CA ELAP # I-2346

525 Del Rey Avenue, Suite E, Sunnyvale, CA 94086 (408) 735-1550 FAX (408) 735-1554

Subcontract Chain of Custody

Subcontract Lab:	Project Name:	Date Sent:	Due Date:
ATL	Geomatrix Consultans	8/17/99	8/24/99 FIRM

Sample Number:	Customer Sample Number:	Matrix:	Test:	Method:	Collect Date:	Collect Time:	Bottle Type:	Preservative:
15847-001	GMX-1-2	Soil	EPA 8270 PAH SIMS	EPA 8270	8/16/99	9:30 AM	4 oz Jar	4 C
15847-002	GMX-1-6	Soil	EPA 8270 PAH SIMS	EPA 8270	8/16/99	9:40 AM	4 oz Jar	4 C
15847-003	GMX-2-2	Soil	EPA 8270 PAH SIMS	EPA 8270	8/16/99	10:40 AM	4 oz Jar	4 C
15847-004	GMX-2-6	Soil	EPA 8270 PAH SIMS	EPA 8270	8/16/99	10:50 AM	4 oz Jar	4 C
15847-005	GMX-3-2	Soil	EPA 8270 PAH SIMS	EPA 8270	8/16/99	11:50 AM	4 oz Jar	4 C
15847-006	GMX-3-6	Soil	EPA 8270 PAH SIMS	EPA 8270	8/16/99	12:05 PM	4 oz Jar	4 C

Relinquished By:	Received By:	Date:	Time:
Jennifer Durkin	via CA Overnight	8/17/99	18:00
Relinquished By:	Received By:	Date:	Time:
	Julie Galvan	8-18-99	0800
Relinquished By:	Received By:	Date:	Time:

Notes: Please spike one of these samples for MS/MSD. PAHs by EPA 8270SIM. Report surrogates

Entech Analytical Labs, Inc.

525 Del Rey Avenue, Suite E
Sunnyvale, CA 94086

QUALITY CONTROL RESULTS SUMMARY

METHOD: Gas Chromatography
Matrix Spike and Matrix Spike Duplicate

QC Batch #: GBG1990822
Matrix: Soil
Units: µg/kg

Date Analyzed: 08/22/99
Quality Control Sample: 15847-002

PARAMETER	Method #	MB µg/kg	SA µg/kg	SR µg/kg	SP µg/kg	SP % R	SPD µg/kg	SPD %R	RPD	QC LIMITS RPD	QC LIMITS %R
Benzene	8020	<5.0	18.0	ND	20	**111**	20	**111**	0.0	25	70-130
Toluene	8020	<5.0	125	ND	150	**120**	145	**116**	3.4	25	70-130
Ethyl Benzene	8020	<5.0	25.0	ND	25	**100**	25	**100**	0.0	25	70-130
Xylenes	8020	<5.0	125	ND	160	**128**	155	**124**	3.2	25	70-130
Gasoline	8015	<1000	2500	ND	2665	**107**	2610	**104**	2.1	25	75-125
aaa-TFT(S.S.)-PID	8020			99%	124%		115%				65-135
aaa-TFT(S.S.)-FID	8015			114%	125%		121%				65-135

Calculated Recoveries Outside of Control Limits:

Definition of Terms:

- na: Not Analyzed in QC batch
- MB: Method Blank
- SA: Spike Added
- SR: Sample Result
- RPD(%): Duplicate Analysis - Relative Percent Difference
- SP: Spike Result
- SP (%R): Spike % Recovery
- SPD: Spike Duplicate Result
- SPD (%R): Spike % Recovery
- NC: Not Calculated

Entech Analytical Labs, Inc.

525 Del Rey Avenue, Suite E
Sunnyvale, CA 94086

QUALITY CONTROL RESULTS SUMMARY

METHOD: Gas Chromatography
Laboratory Control Sample

QC Batch #: GBG1990822
Matrix: Soil
Units: µg/kg

Date Analyzed: 08/22/99
Quality Control Sample: Blank Spike

PARAMETER	Method #	MB µg/kg	SA µg/kg	SR µg/kg	SP	**SP % R**	SPD µg/kg	**SPD %R**	RPD	QC LIMITS RPD	QC LIMITS %R
Benzene	8020	<5.0	18.0	ND	15.0	**83**	15.0	**83**	0.0	25	70-130
Toluene	8020	<5.0	125	ND	130	**104**	135	**108**	3.8	25	70-130
Ethyl Benzene	8020	<5.0	25.0	ND	25.0	**100**	25.0	**100**	0.0	25	70-130
Xylenes	8020	<5.0	125	ND	140	**112**	145	**116**	3.5	25	70-130
Gasoline	8015	<1000	2500	ND	2355	**94**	2415	**97**	2.5	25	75-125
aaa-TFT(S.S.)-PID	8020			88%	97%		98%				65-135
aaa-TFT(S.S.)-FID	8015			101%	105%		107%				65-135

Definition of Terms:

- na: Not Analyzed in QC batch
- MB: Method Blank
- SA: Spike Added
- SR: Sample Result
- RPD(%): Duplicate Analysis - Relative Percent Difference
- SP: Spike Result
- SP (%R): Spike % Recovery
- SPD: Spike Duplicate Result
- SPD (%R): Spike % Recovery
- NC: Not Calculated

Entech Analytical Labs, Inc.

525 Del Rey Avenue, Suite E
Sunnyvale, CA 94086

QUALITY CONTROL RESULTS SUMMARY

Matrix Spike/Matrix Spike Duplicate

QC Batch #: DS990817SiO2
Matrix: Soil
Units: mg/Kg

Date analyzed: 08/22/99
Date extracted: 08/20/99
Quality Control Sample: 15809-002

PARAMETER	Method #	MB mg/Kg	SA mg/Kg	SR mg/Kg	SP mg/Kg	**SP %R**	SPD mg/Kg	**SPD %R**	RPD	QC LIMITS RPD	QC LIMITS %R
Diesel	8015M	<1.0	25	ND	13	**52**	19	**75**	35.8	25	44-119

Calculated Recovery Outside of RPD Control Limits:
Diesel

Hexocosane	83%	71%		80%		65-135

Definition of Terms:

MB: Method Blank
na: Not Analyzed in QC batch
SA: Spike Added
SR: Sample Result
RPD(%): Duplicate Analysis - Relative Percent Difference
SP: Spike Result
SP (%R): Spike % Recovery
SPD: Spike Duplicate Result
SPD (%R): Spike Duplicate % Recovery
NC: Not Calculated

Entech Analytical Labs, Inc.

525 Del Rey Avenue, Suite E
Sunnyvale, CA 94086

QUALITY CONTROL RESULTS SUMMARY
Laboratory Control Spikes

QC Batch #: DS990817SiO2
Matrix: Soil
Units: mg/Kg

Date analyzed: 08/22/99
Date extracted: 08/20/99
Quality Control Sample: Blank Spike

PARAMETER	Method #	MB mg/Kg	SA mg/Kg	SR mg/Kg	SP mg/Kg	**SP %R**	SPD mg/Kg	**SPD %R**	RPD	QC LIMITS RPD	QC LIMITS %R
Diesel	8015M	<1.0	25	ND	20	**81**	21	**84**	2.8	25	44-119
Hexocosane				86%	93%		86%				65-135

Definition of Terms:

MB: Method Blank
na: Not Analyzed in QC batch
SA: Spike Added
SR: Sample Result
RPD(%): Duplicate Analysis - Relative Percent Difference
SP: Spike Result
SP (%R): Spike % Recovery
SPD: Spike Duplicate Result
SPD (%R): Spike Duplicate % Recovery
NC: Not Calculated

CHAIN-OF-CUSTODY RECORD

Nº 12207

Date: 8-16-99

Page 1 of 1

Project No.: 4221.020

Samplers (Signatures): Chris Pasch

Date	Time	Sample Number	EPA Method 8010	EPA Method 8020	EPA Method 8020 (BTEX only)	EPA Method 8240	EPA Method 8270	TPH as gasoline	TPH as diesel	HOLD	EPA 8270 SIMS	TPH d/m				Cooled	Soil (S), Water (W), or Vapor (V)	Acidified	Number of containers
8-16	430	GMX-1-2									X	X			15847-001	Y	S	N	1
	935	GMX-1-4								X					15847-007				
	940	GMX-1-6						X			X	X			15847-002				
	945	GMX-1-8								X					15847-008				
	950	GMX-1-10								X					15847-009				
	955	GMX-1-12								X					15847-010				
	1005	GMX-1-14								X					15847-011				
	1010	GMX-1-16								X					15847-012				
	1040	GMX-2-2									X	X			15847-003				
	1045	GMX-2-4								X					15847-013				
	1050	GMX-2-6						X			X	X			15847-004				
	1055	GMX-2-8								X					15847-014				

ANALYSES

REMARKS

Additional Comments

Union Pacific Job - Bill directly!

TPH d/m = diesel & motor oil by 8015 following Silica Gel Cleanup

PNAs by 8270 SIMS

TPHg by 8015

Turnaround time: Standard

Results to: Chris Pasch

Total No. of containers: 12

Relinquished by (signature): Chris Pasch	Date: 8/17	Relinquished by (signature):	Date:	Relinquished by (signature):	Date:	Method of Shipment: Geomatrix drop off
Printed Name: CHRIS PASCH	Time: 1500	Printed Name:	Time:	Printed Name:	Time:	Laboratory Comments and Log No.: 5 Day TAT Firm.
Company: Geomatrix		Company:		Company:		
Received by (signature): Jennifer Durkin	Date: 8/17/99	Received by (signature):	Date:	Received by (signature):	Date:	
Printed Name: Jennifer Durkin	Time: 1507	Printed Name:	Time:	Printed Name:	Time:	
Company: Entech		Company:		Company:		

Geomatrix Consultants
100 Pine Street, 10th Floor
San Francisco, California 94111
415 434 9400

CHAIN-OF-CUSTODY RECORD

№ 12208

Date: 8-16-99

Page 1 of 1

Project No.: 4221.020

Samplers (Signatures): Chris Fosch

Date	Time	Sample Number	EPA Method 8010	EPA Method 8020	EPA Method 8020 (BTEX only)	EPA Method 8240	EPA Method 8270	TPH as gasoline	TPH as diesel		HOLD		EPA 8270 SIMS		TPH d/m				Cooled	Soil (S), Water (W), or Vapor (V)	Acidified	Number of containers
8-16	1100	GMX-2-10									X							15847-015	Y	S	N	1
	1105	GMX-2-12									X							15847-016				
	1150	GMX-3-2						[redacted]		cr			X		X			15847-005				
	1200	GMX-3-4									X							15847-017				
	1205	GMX-3-6						X					X		X			15847-006				
	1210	GMX-3-8									X							15847-018				
	1215	GMX-3-10									X							15847-019				
	1220	GMX-3-12									X							15847-020				
	1225	GMX-3-14									X							15847-021				
	1230	GMX-3-16									X							15847-022				

ANALYSES

REMARKS

Additional Comments

Union Pacific Job Bill Directly!

TPH d/m = Total Petroleum hydrocarbons as diesel and referred by EPA 8015 following Silica Gel Cleanup

PNAs by 8270 SIMS

TPH g by 8015

Turnaround time: Standard

Results to: Chris Fosch

Total No. of containers: 10

Relinquished by (signature):	Date:	Relinquished by (signature):	Date:	Relinquished by (signature):	Date:
Chris Fosch	8/17				
Printed Name: CHRIS FOSCH	Time: 1500	Printed Name:	Time:	Printed Name:	Time:
Company: GeomatriX		Company:		Company:	
Received by (signature): Jennifer Durkin	Date: 8/17/99	Received by (signature):	Date:	Received by (signature):	Date:
Printed Name: Jennifer Durkin	Time: 15:07	Printed Name:	Time:	Printed Name:	Time:
Company: Entech		Company:		Company:	

Method of Shipment: GMX-dropoff

Laboratory Comments and Log No.: 5 Day TAT Firm.

Geomatrix Consultants
100 Pine Street, 10th Floor
San Francisco, California 94111
415 434 9400

Entech Analytical Labs, Inc.

CA ELAP# I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

August 24, 1999

Chris Posch
Geomatrix Consultants
2101 Webster Street, 12th Floor
Oakland, CA 94612

Subject:	4 Water Samples
Lab #'s:	15857-001 – 15857-004
Project Name:	
Project Number:	4221.020
P.O. Number:	Invoice Union Pacific
Method(s):	EPA 8260B, EPA 8015M

Dear Chris Posch,

Chemical analysis on the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. USEPA protocols for sample storage and preservation were followed.

Entech Analytical Labs, Inc. is certified by the State of California (#I-2346). If you have any questions regarding procedures or results, please call me at 408-735-1550.

Sincerely,

Michelle L. Anderson
Lab Director

Entech Analytical Labs, Inc.

CA ELAP= I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Geomatrix Consultants
2101 Webster Street, 12th Floor
Oakland, CA 94612
Attn: Chris Posch

Date: 8/24/99
Date Received: 8/17/99
Project: 4221.020
PO #:
Sampled By: Client

Certified Analytical Report

Water Sample Analysis:

Sample ID	GMX-1			GMX-2			GMX-3				
Sample Date	8/16/99			8/16/99			8/16/99				
Sample Time	12:30			13:00			15:30				
Lab #	**15857-001**			**15857-002**			**15857-003**				
	Result	DF	DLR	Result	DF	DLR	Result	DF	DLR	PQL	Method
Results in µg/Liter:											
Extraction Date	8/20/99			8/20/99			8/20/99				
Analysis Date	8/22/99			8/22/99			8/22/99				
QC Batch #	DW990811SiO2			DW990811SiO2			DW990811SiO2				
TPH-Diesel	**ND**	1.0	50	**ND**	1.0	50	**ND**	1.0	50	50	8015M
TPH-Motor Oil	**ND**	1.0	250	**ND**	1.0	250	**ND**	1.0	250	250	8015M
Hexacosane	109%			100%			110%				
Analysis Date	8/19/99			8/18/99			8/18/99				
QC Batch #	GBG1990818			GBG1990818			GBG1990818				
TPH-Gas	**ND**	1.0	50	**ND**	1.0	50	**ND**	1.0	50	50	8015M
a,a,a-Trifluorotoluene	90%			87%			91%				

TPH-Diesel and TPH-Motor Oil extraction performed with silica gel cleanup (EPA 3630-Mod)

Michelle L. Anderson, Lab Director

Environmental Analysis Since 1983

Entech Analytical Labs, Inc.

CA ELAP# I-2346

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Geomatrix Consultants
2101 Webster Street, 12th Floor
Oakland, CA 94612
Attn: Chris Posch

Date: 8/24/99
Date Received: 8/17/99
Project: 4221.020
PO #:
Sampled By: Client

Certified Analytical Report

Water Sample Analysis:

Sample ID	**Trip Blank**										
Sample Date	8/4/99										
Sample Time	7:25										
Lab #	**15857-004**										
	Result	DF	DLR							PQL	Method
Results in µg/Liter:											
Analysis Date	8/18/99										
QC Batch #	GBG1990819										
TPH-Gas	**ND**	1.0	50							50	8015M
a,a,a-Trifluorotoluene	92%										

Michelle Anderson, Lab Director

Entech Analytical Labs, Inc.

CA ELAP= I-2346

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Certified Analytical Report
Volatile Organic Compounds by EPA Method 8260B

Client: Geomatrix Consultants
Sample Matrix: Water
Sample Date/Time: 8/16/99 12:30
Lab #: 15857-001
Client ID: GMX-1

Date Reported: 8/24/99
Date Received: 8/17/99
Date Analyzed: 8/24/99
Dilution Factor: 1
QC Batch #: WGCMS990824

Compound	Value	PQL	DLR	Compound	Value	PQL	DLR
Acetone	ND	100	100	Chloroform	ND	5	5
Acrylonitrile	ND	5	5	Chloromethane	ND	5	5
Allyl Chloride	ND	5	5	2-Chlorotoluene	ND	5	5
tert-Amyl Methyl Ether	ND	5	5	4-Chlorotoluene	ND	5	5
Benzene	ND	5	5	Dibromochloromethane	ND	5	5
Benzyl Chloride	ND	5	5	1,2-Dibromo-3-chloropropane	ND	5	5
Bromobenzene	ND	5	5	1,2-Dibromoethane	ND	5	5
Bromochloromethane	ND	5	5	Dibromomethane	ND	5	5
Bromodichloromethane	ND	5	5	cis-1,4-Dichloro-2-butene	ND	5	5
Bromoform	ND	5	5	trans-1,4-Dichloro-2-butene	ND	5	5
Bromomethane	ND	5	5	Dichlorodifluoromethane	ND	5	5
tert-Butanol	ND	20	20	1,2-Dichlorobenzene	ND	5	5
2-Butanone (MEK)	ND	20	20	1,3-Dichlorobenzene	ND	5	5
tert-Butyl Ethyl Ether	ND	5	5	1,4-Dichlorobenzene	ND	5	5
n-Butylbenzene	ND	5	5	1,1-Dichloroethane	ND	5	5
sec-Butylbenzene	ND	5	5	1,2-Dichloroethane	ND	5	5
tert-Butylbenzene	ND	5	5	1,1-Dichloroethene	ND	5	5
Carbon Disulfide	ND	5	5	cis-1,2-Dichloroethene	ND	5	5
Carbon Tetrachloride	ND	5	5	trans-1,2-Dichloroethene	ND	5	5
Chlorobenzene	ND	5	5	1,2-Dichloropropane	ND	5	5
Chloroethane	ND	5	5	1,3-Dichloropropane	ND	5	5
2-Chloroethyl Vinyl Ether	ND	5	5	2,2-Dichloropropane	ND	5	5

Surrogate	Recovery (%)
Dibromofluoromethane	100
Toluene-d8	99
4-Bromofluorobenzene	90

1. Results are reported in ug/Liter (ppb)
2. DLR= DF x PQL
3. Analysis performed by Entech Analytical Labs, Inc. (CAELAP #I-2346)

Michelle L. Anderson, Lab Director

ND: None Detected at or above DLR
DLR: Detection Reporting Limit

PQL: Practical Quantitation Limit
DF: Dilution Factor

Environmental Analysis Since 1983

Entech Analytical Labs, Inc.

CA ELAP= I-2346

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Certified Analytical Report
Volatile Organic Compounds by EPA Method 8260B

Client: Geomatrix Consultants
Sample Matrix: Water
Sample Date/Time: 8/16/99 12:30
Lab #: 15857-001
Client ID: GMX-1

Date Reported: 8/24/99
Date Received: 8/17/99
Date Analyzed: 8/24/99
Dilution Factor: 1
QC Batch #: WGCMS990824

Compound	Value	PQL	DLR	Compound	Value	PQL	DLR
1,1-Dichloropropene	ND	5	5	Tetrachloroethene	ND	5	5
cis-1,3-Dichloropropene	ND	5	5	Toluene	ND	5	5
trans-1,3-Dichloropropene	ND	5	5	1,2,3-Trichlorobenzene	ND	5	5
Diisopropyl Ether	ND	5	5	1,2,4-Trichlorobenzene	ND	5	5
Ethyl Methacrylate	ND	5	5	1,2,3-Trichloropropane	ND	5	5
Ethylbenzene	ND	5	5	1,1,1-Trichloroethane	ND	5	5
Hexachlorobutadiene	ND	5	5	1,1,2-Trichloroethane	ND	5	5
2-Hexanone	ND	20	20	Trichloroethene	ND	5	5
Iodomethane	ND	5	5	Trichlorofluoromethane	ND	5	5
Isopropylbenzene	ND	5	5	1,2,4-Trimethylbenzene	ND	5	5
p-Isopropyltoluene	ND	5	5	1,3,5-Trimethylbenzene	ND	5	5
Methacrylonitrile	ND	5	5	Xylenes (total)	ND	5	5
Methyl Methacrylate	ND	5	5	Vinyl Chloride	ND	5	5
4-Methyl-2-Pentanone (MIBK)	ND	20	20				
Methyl-tert-butyl Ether	ND	5	5				
Methylene Chloride	ND	5	5				
Naphthalene	ND	5	5				
Pentachloroethane	ND	5	5				
2-Picoline	ND	5	5				
n-Propylbenzene	ND	5	5				
Styrene	ND	5	5				
1,1,1,2-Tetrachloroethane	ND	5	5				
1,1,2,2-Tetrachloroethane	ND	5	5				

Surrogate	Recovery (%)
Dibromofluoromethane	100
Toluene-d8	99
4-Bromofluorobenzene	90

1. Results are reported in ug/Liter (ppb)
2. DLR= DF x PQL
3. Analysis performed by Entech Analytical Labs, Inc. (CAELAP #I-2346)

Michelle L. Anderson, Lab Director

ND: None Detected at or above DLR
DLR: Detection Reporting Limit

PQL: Practical Quantitation Limit
DF: Dilution Factor

Entech Analytical Labs, Inc.

CA ELAP= I-2346

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Certified Analytical Report
Volatile Organic Compounds by EPA Method 8260B

Client: Geomatrix Consultants
Sample Matrix: Water
Sample Date/Time: 8/16/99 13:00
Lab #: 15857-002
Client ID: GMX-2

Date Reported: 8/24/99
Date Received: 8/17/99
Date Analyzed: 8/24/99
Dilution Factor: 1
QC Batch #: WGCMS990824

Compound	Value	PQL	DLR	Compound	Value	PQL	DLR
Acetone	ND	100	100	Chloroform	ND	5	5
Acrylonitrile	ND	5	5	Chloromethane	ND	5	5
Allyl Chloride	ND	5	5	2-Chlorotoluene	ND	5	5
tert-Amyl Methyl Ether	ND	5	5	4-Chlorotoluene	ND	5	5
Benzene	ND	5	5	Dibromochloromethane	ND	5	5
Benzyl Chloride	ND	5	5	1,2-Dibromo-3-chloropropane	ND	5	5
Bromobenzene	ND	5	5	1,2-Dibromoethane	ND	5	5
Bromochloromethane	ND	5	5	Dibromomethane	ND	5	5
Bromodichloromethane	ND	5	5	cis-1,4-Dichloro-2-butene	ND	5	5
Bromoform	ND	5	5	trans-1,4-Dichloro-2-butene	ND	5	5
Bromomethane	ND	5	5	Dichlorodifluoromethane	ND	5	5
tert-Butanol	ND	20	20	1,2-Dichlorobenzene	ND	5	5
2-Butanone (MEK)	ND	20	20	1,3-Dichlorobenzene	ND	5	5
tert-Butyl Ethyl Ether	ND	5	5	1,4-Dichlorobenzene	ND	5	5
n-Butylbenzene	ND	5	5	1,1-Dichloroethane	ND	5	5
sec-Butylbenzene	ND	5	5	1,2-Dichloroethane	ND	5	5
tert-Butylbenzene	ND	5	5	1,1-Dichloroethene	ND	5	5
Carbon Disulfide	ND	5	5	cis-1,2-Dichloroethene	ND	5	5
Carbon Tetrachloride	ND	5	5	trans-1,2-Dichloroethene	ND	5	5
Chlorobenzene	ND	5	5	1,2-Dichloropropane	ND	5	5
Chloroethane	ND	5	5	1,3-Dichloropropane	ND	5	5
2-Chloroethyl Vinyl Ether	ND	5	5	2,2-Dichloropropane	ND	5	5

Surrogate	Recovery (%)
Dibromofluoromethane	97
Toluene-d8	98
4-Bromofluorobenzene	93

1. Results are reported in ug/Liter (ppb)
2. DLR= DF x PQL
3. Analysis performed by Entech Analytical Labs, Inc. (CAELAP #I-2346)

Michelle L. Anderson, Lab Director

ND: None Detected at or above DLR
DLR: Detection Reporting Limit

PQL: Practical Quantitation Limit
DF: Dilution Factor

Entech Analytical Labs, Inc.

CA ELAP= I-2346

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Certified Analytical Report
Volatile Organic Compounds by EPA Method 8260B

Client: Geomatrix Consultants
Sample Matrix: Water
Sample Date/Time: 8/16/99 13:00
Lab #: 15857-002
Client ID: GMX-2

Date Reported: 8/24/99
Date Received: 8/17/99
Date Analyzed: 8/24/99
Dilution Factor: 1
QC Batch #: WGCMS990824

Compound	Value	PQL	DLR	Compound	Value	PQL	DLR
1,1-Dichloropropene	ND	5	5	Tetrachloroethene	ND	5	5
cis-1,3-Dichloropropene	ND	5	5	Toluene	ND	5	5
trans-1,3-Dichloropropene	ND	5	5	1,2,3-Trichlorobenzene	ND	5	5
Diisopropyl Ether	ND	5	5	1,2,4-Trichlorobenzene	ND	5	5
Ethyl Methacrylate	ND	5	5	1,2,3-Trichloropropane	ND	5	5
Ethylbenzene	ND	5	5	1,1,1-Trichloroethane	ND	5	5
Hexachlorobutadiene	ND	5	5	1,1,2-Trichloroethane	ND	5	5
2-Hexanone	ND	20	20	Trichloroethene	ND	5	5
Iodomethane	ND	5	5	Trichlorofluoromethane	ND	5	5
Isopropylbenzene	ND	5	5	1,2,4-Trimethylbenzene	ND	5	5
p-Isopropyltoluene	ND	5	5	1,3,5-Trimethylbenzene	ND	5	5
Methacrylonitrile	ND	5	5	Xylenes (total)	ND	5	5
Methyl Methacrylate	ND	5	5	Vinyl Chloride	ND	5	5
4-Methyl-2-Pentanone (MIBK)	ND	20	20				
Methyl-tert-butyl Ether	ND	5	5				
Methylene Chloride	ND	5	5				
Naphthalene	ND	5	5				
Pentachloroethane	ND	5	5				
2-Picoline	ND	5	5				
n-Propylbenzene	ND	5	5				
Styrene	ND	5	5				
1,1,1,2-Tetrachloroethane	ND	5	5				
1,1,2,2-Tetrachloroethane	ND	5	5				

Surrogate	Recovery (%)
Dibromofluoromethane	97
Toluene-d8	98
4-Bromofluorobenzene	93

1. Results are reported in ug/Liter (ppb)
2. DLR= DF x PQL
3. Analysis performed by Entech Analytical Labs, Inc. (CAELAP #I-2346)

Michelle L. Anderson, Lab Director

ND: None Detected at or above DLR
DLR: Detection Reporting Limit

PQL: Practical Quantitation Limit
DF: Dilution Factor

Entech Analytical Labs, Inc.

CA ELAP= I-2346

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Certified Analytical Report
Volatile Organic Compounds by EPA Method 8260B

Client: Geomatrix Consultants
Sample Matrix: Water
Sample Date/Time: 8/16/99 15:30
Lab #: 15857-003
Client ID: GMX-3

Date Reported: 8/24/99
Date Received: 8/17/99
Date Analyzed: 8/24/99
Dilution Factor: 1
QC Batch #: WGCMS990824

Compound	Value	PQL	DLR	Compound	Value	PQL	DLR
Acetone	ND	100	100	Chloroform	ND	5	5
Acrylonitrile	ND	5	5	Chloromethane	ND	5	5
Allyl Chloride	ND	5	5	2-Chlorotoluene	ND	5	5
tert-Amyl Methyl Ether	ND	5	5	4-Chlorotoluene	ND	5	5
Benzene	ND	5	5	Dibromochloromethane	ND	5	5
Benzyl Chloride	ND	5	5	1,2-Dibromo-3-chloropropane	ND	5	5
Bromobenzene	ND	5	5	1,2-Dibromoethane	ND	5	5
Bromochloromethane	ND	5	5	Dibromomethane	ND	5	5
Bromodichloromethane	ND	5	5	cis-1,4-Dichloro-2-butene	ND	5	5
Bromoform	ND	5	5	trans-1,4-Dichloro-2-butene	ND	5	5
Bromomethane	ND	5	5	Dichlorodifluoromethane	ND	5	5
tert-Butanol	ND	20	20	1,2-Dichlorobenzene	ND	5	5
2-Butanone (MEK)	ND	20	20	1,3-Dichlorobenzene	ND	5	5
tert-Butyl Ethyl Ether	ND	5	5	1,4-Dichlorobenzene	ND	5	5
n-Butylbenzene	ND	5	5	1,1-Dichloroethane	ND	5	5
sec-Butylbenzene	ND	5	5	1,2-Dichloroethane	ND	5	5
tert-Butylbenzene	ND	5	5	1,1-Dichloroethene	ND	5	5
Carbon Disulfide	ND	5	5	cis-1,2-Dichloroethene	ND	5	5
Carbon Tetrachloride	ND	5	5	trans-1,2-Dichloroethene	ND	5	5
Chlorobenzene	ND	5	5	1,2-Dichloropropane	ND	5	5
Chloroethane	ND	5	5	1,3-Dichloropropane	ND	5	5
2-Chloroethyl Vinyl Ether	ND	5	5	2,2-Dichloropropane	ND	5	5

Surrogate	Recovery (%)
Dibromofluoromethane	100
Toluene-d8	96
4-Bromofluorobenzene	88

1. Results are reported in ug/Liter (ppb)
2. DLR= DF x PQL
3. Analysis performed by Entech Analytical Labs, Inc. (CAELAP #I-2346)

Michelle L. Anderson, Lab Director

ND: None Detected at or above DLR
DLR: Detection Reporting Limit

PQL: Practical Quantitation Limit
DF: Dilution Factor

Entech Analytical Labs, Inc.

CA ELAP# I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Certified Analytical Report
Volatile Organic Compounds by EPA Method 8260B

Client: Geomatrix Consultants
Sample Matrix: Water
Sample Date/Time: 8/16/99 15:30
Lab #: 15857-003
Client ID: GMX-3

Date Reported: 8/24/99
Date Received: 8/17/99
Date Analyzed: 8/24/99
Dilution Factor: 1
QC Batch #: WGCMS990824

Compound	Value	PQL	DLR	Compound	Value	PQL	DLR
1,1-Dichloropropene	ND	5	5	Tetrachloroethene	ND	5	5
cis-1,3-Dichloropropene	ND	5	5	Toluene	ND	5	5
trans-1,3-Dichloropropene	ND	5	5	1,2,3-Trichlorobenzene	ND	5	5
Diisopropyl Ether	ND	5	5	1,2,4-Trichlorobenzene	ND	5	5
Ethyl Methacrylate	ND	5	5	1,2,3-Trichloropropane	ND	5	5
Ethylbenzene	ND	5	5	1,1,1-Trichloroethane	ND	5	5
Hexachlorobutadiene	ND	5	5	1,1,2-Trichloroethane	ND	5	5
2-Hexanone	ND	20	20	Trichloroethene	ND	5	5
Iodomethane	ND	5	5	Trichlorofluoromethane	ND	5	5
Isopropylbenzene	ND	5	5	1,2,4-Trimethylbenzene	ND	5	5
p-Isopropyltoluene	ND	5	5	1,3,5-Trimethylbenzene	ND	5	5
Methacrylonitrile	ND	5	5	Xylenes (total)	ND	5	5
Methyl Methacrylate	ND	5	5	Vinyl Chloride	ND	5	5
4-Methyl-2-Pentanone (MIBK)	ND	20	20				
Methyl-tert-butyl Ether	ND	5	5				
Methylene Chloride	ND	5	5				
Naphthalene	ND	5	5				
Pentachloroethane	ND	5	5				
2-Picoline	ND	5	5				
n-Propylbenzene	ND	5	5				
Styrene	ND	5	5				
1,1,1,2-Tetrachloroethane	ND	5	5				
1,1,2,2-Tetrachloroethane	ND	5	5				

Surrogate	Recovery (%)
Dibromofluoromethane	100
Toluene-d8	96
4-Bromofluorobenzene	88

1. Results are reported in ug/Liter (ppb)
2. DLR= DF x PQL
3. Analysis performed by Entech Analytical Labs, Inc. (CAELAP #I-2346)

Michelle L. Anderson, Lab Director

ND: None Detected at or above DLR
DLR: Detection Reporting Limit

PQL: Practical Quantitation Limit
DF: Dilution Factor

Entech Analytical Labs, Inc.

CA ELAP= I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Certified Analytical Report
Volatile Organic Compounds by EPA Method 8260B

Client: Geomatrix Consultants
Sample Matrix: Water
Sample Date/Time: 8/4/99 7:25
Lab #: 15857-004
Client ID: Trip Blank

Date Reported: 8/24/99
Date Received: 8/17/99
Date Analyzed: 8/24/99
Dilution Factor: 1
QC Batch #: WGCMS990824

Compound	Value	PQL	DLR	Compound	Value	PQL	DLR
Acetone	ND	100	100	Chloroform	ND	5	5
Acrylonitrile	ND	5	5	Chloromethane	ND	5	5
Allyl Chloride	ND	5	5	2-Chlorotoluene	ND	5	5
tert-Amyl Methyl Ether	ND	5	5	4-Chlorotoluene	ND	5	5
Benzene	ND	5	5	Dibromochloromethane	ND	5	5
Benzyl Chloride	ND	5	5	1,2-Dibromo-3-chloropropane	ND	5	5
Bromobenzene	ND	5	5	1,2-Dibromoethane	ND	5	5
Bromochloromethane	ND	5	5	Dibromomethane	ND	5	5
Bromodichloromethane	ND	5	5	cis-1,4-Dichloro-2-butene	ND	5	5
Bromoform	ND	5	5	trans-1,4-Dichloro-2-butene	ND	5	5
Bromomethane	ND	5	5	Dichlorodifluoromethane	ND	5	5
tert-Butanol	ND	20	20	1,2-Dichlorobenzene	ND	5	5
2-Butanone (MEK)	ND	20	20	1,3-Dichlorobenzene	ND	5	5
tert-Butyl Ethyl Ether	ND	5	5	1,4-Dichlorobenzene	ND	5	5
n-Butylbenzene	ND	5	5	1,1-Dichloroethane	ND	5	5
sec-Butylbenzene	ND	5	5	1,2-Dichloroethane	ND	5	5
tert-Butylbenzene	ND	5	5	1,1-Dichloroethene	ND	5	5
Carbon Disulfide	ND	5	5	cis-1,2-Dichloroethene	ND	5	5
Carbon Tetrachloride	ND	5	5	trans-1,2-Dichloroethene	ND	5	5
Chlorobenzene	ND	5	5	1,2-Dichloropropane	ND	5	5
Chloroethane	ND	5	5	1,3-Dichloropropane	ND	5	5
2-Chloroethyl Vinyl Ether	ND	5	5	2,2-Dichloropropane	ND	5	5

Surrogate	Recovery (%)
Dibromofluoromethane	93
Toluene-d8	97
4-Bromofluorobenzene	87

1. Results are reported in ug/Liter (ppb)
2. DLR= DF x PQL
3. Analysis performed by Entech Analytical Labs, Inc. (CAELAP #I-2346)

Michelle L. Anderson, Lab Director

ND: None Detected at or above DLR
DLR: Detection Reporting Limit

PQL: Practical Quantitation Limit
DF: Dilution Factor

Environmental Analysis Since 1983

Entech Analytical Labs, Inc.

CA ELAP= I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Certified Analytical Report
Volatile Organic Compounds by EPA Method 8260B

Client: Geomatrix Consultants
Sample Matrix: Water
Sample Date/Time: 8/4/99 7:25
Lab #: 15857-004
Client ID: Trip Blank

Date Reported: 8/24/99
Date Received: 8/17/99
Date Analyzed: 8/24/99
Dilution Factor: 1
QC Batch #: WGCMS990824

Compound	Value	PQL	DLR	Compound	Value	PQL	DLR
1,1-Dichloropropene	ND	5	5	Tetrachloroethene	ND	5	5
cis-1,3-Dichloropropene	ND	5	5	Toluene	ND	5	5
trans-1,3-Dichloropropene	ND	5	5	1,2,3-Trichlorobenzene	ND	5	5
Diisopropyl Ether	ND	5	5	1,2,4-Trichlorobenzene	ND	5	5
Ethyl Methacrylate	ND	5	5	1,2,3-Trichloropropane	ND	5	5
Ethylbenzene	ND	5	5	1,1,1-Trichloroethane	ND	5	5
Hexachlorobutadiene	ND	5	5	1,1,2-Trichloroethane	ND	5	5
2-Hexanone	ND	20	20	Trichloroethene	ND	5	5
Iodomethane	ND	5	5	Trichlorofluoromethane	ND	5	5
Isopropylbenzene	ND	5	5	1,2,4-Trimethylbenzene	ND	5	5
p-Isopropyltoluene	ND	5	5	1,3,5-Trimethylbenzene	ND	5	5
Methacrylonitrile	ND	5	5	Xylenes (total)	ND	5	5
Methyl Methacrylate	ND	5	5	Vinyl Chloride	ND	5	5
4-Methyl-2-Pentanone (MIBK)	ND	20	20				
Methyl-tert-butyl Ether	ND	5	5				
Methylene Chloride	ND	5	5				
Naphthalene	ND	5	5				
Pentachloroethane	ND	5	5				
2-Picoline	ND	5	5				
n-Propylbenzene	ND	5	5				
Styrene	ND	5	5				
1,1,1,2-Tetrachloroethane	ND	5	5				
1,1,2,2-Tetrachloroethane	ND	5	5				

Surrogate	Recovery (%)
Dibromofluoromethane	93
Toluene-d8	97
4-Bromofluorobenzene	87

1. Results are reported in ug/Liter (ppb)
2. DLR= DF x PQL
3. Analysis performed by Entech Analytical Labs, Inc. (CAELAP #I-2346)

Michelle L. Anderson, Lab Director

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DLR: Detection Reporting Limit

PQL: Practical Quantitation Limit
DF: Dilution Factor

Entech Analytical Labs, Inc.

CA ELAP= I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Certified Analytical Report
Volatile Organic Compounds by EPA Method 8260B

Client: Geomatrix Consultants
Sample Matrix: Water
Sample Date/Time: 8/24/99
Lab #: Method Blank
Client ID:

Date Reported: 8/24/99
Date Received: 8/24/99
Date Analyzed: 8/24/99
Dilution Factor: 1

Compound	Value	PQL	DLR	Compound	Value	PQL	DLR
Acetone	ND	100	100	Chloroform	ND	5	5
Acrylonitrile	ND	5	5	Chloromethane	ND	5	5
Allyl Chloride	ND	5	5	2-Chlorotoluene	ND	5	5
tert-Amyl Methyl Ether	ND	5	5	4-Chlorotoluene	ND	5	5
Benzene	ND	5	5	Dibromochloromethane	ND	5	5
Benzyl Chloride	ND	5	5	1,2-Dibromo-3-chloropropane	ND	5	5
Bromobenzene	ND	5	5	1,2-Dibromoethane	ND	5	5
Bromochloromethane	ND	5	5	Dibromomethane	ND	5	5
Bromodichloromethane	ND	5	5	cis-1,4-Dichloro-2-butene	ND	5	5
Bromoform	ND	5	5	trans-1,4-Dichloro-2-butene	ND	5	5
Bromomethane	ND	5	5	Dichlorodifluoromethane	ND	5	5
tert-Butanol	ND	20	20	1,2-Dichlorobenzene	ND	5	5
2-Butanone (MEK)	ND	20	20	1,3-Dichlorobenzene	ND	5	5
tert-Butyl Ethyl Ether	ND	5	5	1,4-Dichlorobenzene	ND	5	5
n-Butylbenzene	ND	5	5	1,1-Dichloroethane	ND	5	5
sec-Butylbenzene	ND	5	5	1,2-Dichloroethane	ND	5	5
tert-Butylbenzene	ND	5	5	1,1-Dichloroethene	ND	5	5
Carbon Disulfide	ND	5	5	cis-1,2-Dichloroethene	ND	5	5
Carbon Tetrachloride	ND	5	5	trans-1,2-Dichloroethene	ND	5	5
Chlorobenzene	ND	5	5	1,2-Dichloropropane	ND	5	5
Chloroethane	ND	5	5	1,3-Dichloropropane	ND	5	5
2-Chloroethyl Vinyl Ether	ND	5	5	2,2-Dichloropropane	ND	5	5

Surrogate	Recovery (%)
Dibromofluoromethane	86
Toluene-d8	97
4-Bromofluorobenzene	86

1. Results are reported in ug/Liter (ppb)
2. DLR= DF x PQL
3. Analysis performed by Entech Analytical Labs, Inc. (CAELAP #I-2346)

Michelle L. Anderson, Lab Director

ND: None Detected at or above DLR
DLR: Detection Reporting Limit

PQL: Practical Quantitation Limit
DF: Dilution Factor

Entech Analytical Labs, Inc.

CA ELAP# 1-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Geomatrix Consultants
2101 Webster Street, 12th Floor
Oakland, CA 94612
Attn: Chris Posch

Date: 8/24/99
Date Received: 8/17/99
Project: 4221.020
PO #:
Sampled By: Client

Certified Analytical Report

Soil Sample Analysis: (All results in mg/kg)

Sample ID	GMX-1-2			GMX-2-2			GMX-3-2				
Sample Date	8/16/99			8/16/99			8/16/99				
Sample Time	9:30			10:40			11:50				
Lab #	**15847-001**			**15847-003**			**15847-005**				
	Result	DF	DLR	Result	DF	DLR	Result	DF	DLR	PQL	Method
Extraction Date	8/20/99			8/20/99			8/20/99				
Analysis Date	8/22/99			8/22/99			8/22/99				
QC Batch #	DS990817SiO2			DS990817SiO2			DS990817SiO2				
TPH-Diesel	**ND**	1.0	1.0	**ND**	1.0	1.0	**ND**	1.0	1.0	1.0	8015M
TPH-Motor Oil	**ND**	1.0	13	**ND**	1.0	13	**ND**	1.0	13	13	8015M
Hexacosane	80%			79%			86%				

TPH-Diesel and TPH-Motor Oil extraction performed with silica gel cleanup (EPA 3630-Mod)

Michelle L. Anderson, Lab Director

Entech Analytical Labs, Inc.

CA ELAP# I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Geomatrix Consultants
2101 Webster Street, 12th Floor
Oakland, CA 94612
Attn: Chris Posch

Date: 8/24/99
Date Received: 8/17/99
Project: 4221.020
PO #:
Sampled By: Client

Certified Analytical Report

Soil Sample Analysis: All results in mg/kg)

Sample ID	**GMX-1-6**			**GMX-2-6**			**GMX-3-6**				
Sample Date	8/16/99			8/16/99			8/16/99				
Sample Time	9:40			10:50			12:05				
Lab #	**15847-002**			**15847-004**			**15847-006**				
	Result	DF	DLR	Result	DF	DLR	Result	DF	DLR	PQL	Method
Extraction Date	8/20/99			8/20/99			8/20/99				
Analysis Date	8/22/99			8/22/99			8/22/99				
QC Batch #	DS990817SiO2			DS990817SiO2			DS990817SiO2				
TPH-Diesel	**ND**	1.0	1.0	**ND**	1.0	1.0	**ND**	1.0	1.0	1.0	8015M
TPH-Motor Oil	**ND**	1.0	13	**ND**	1.0	13	**ND**	1.0	13	13	8015M
Hexacosane	77%			93%			88%				
Analysis Date	8/22/99			8/22/99			8/22/99				
QC Batch #	GBG1990822			GBG1990822			GBG1990822				
TPH-Gas	**ND**	1.0	1.0	**ND**	1.0	1.0	**ND**	1.0	1.0	1.0	8015M
a,a,a-Trifluorotoluene	99%			100%			98%				

TPH-Diesel and TPH-Motor Oil extraction performed with silica gel cleanup (EPA 3630-Mod)

Michelle L. Anderson, Lab Director

Entech Analytical Labs, Inc.

CA ELAP= I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

August 24, 1999

Chris Posch
Geomatrix Consultants
2101 Webster Street, 12th Floor
Oakland, CA 94612

Subject:	6 Soil Samples
Lab #'s:	15847-001 – 15847-006
Project Name:	
Project Number:	4221.020
P.O. Number:	Invoice Union Pacific
Method(s):	EPA 8015M
	EPA 8270 - ATL
Subcontract Lab:	Advanced Technology Laboratories (CAELAP #1838)

Dear Chris Posch,

Chemical analysis on the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. USEPA protocols for sample storage and preservation were followed.

Entech Analytical Labs, Inc. is certified by the State of California (#I-2346). If you have any questions regarding procedures or results, please call me at 408-735-1550.

Sincerely,

Michelle L. Anderson
Lab Director

August 23, 1999 ELAP No.: 1838

Entech Analytical Labs, Inc.
525 Del Rey Avenue,
Sunyvale, CA 94806

ATTN: Michelle Anderson

Client's Project: Geomatrix Consultants
Lab No.: 37759-001/006

Enclosed are the results for sample(s) received by Advanced Technology Laboratories and tested for the parameters indicated in the enclosed chain of custody.

Thank you for the opportunity to service the needs of your company. Please feel free to call me at (562) 989 - 4045 if I can be of further assistance to your company.

Sincerely,

Cheryl De Los Reyes
Technical Operations Manager
CDR/jh

Enclosures

This cover letter is an integral part of this analytical report.